Check Your
Aviation English

30 Units to practise and prepare your speaking and listening for **ICAO compliance**

Plus
- progress and review tests
- realistic R/T exchanges
- audio CDs with example answers

Henry Emery and Andy Roberts

MACMILLAN

All R/T extracts checked and verified by Oxford Aviation Academy

Oxford aviation academy

Check Your
Aviation English

For **ICAO** compliance

Henry Emery and Andy Roberts

MACMILLAN

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INTRODUCTION

to *Check Your Aviation English*

This course is for aviation professionals – particularly pilots and air-traffic controllers – who wish to maintain and improve on Level 4 (operational) as measured by the ICAO language proficiency rating scale (see pages 6 and 7). The course aims to increase confidence in communication and develops the very specific skills described in the ICAO Level 4 language profile. These are the skills needed to succeed in any Level 4 assessment and also to function effectively and safely in an aviation environment.

This course does not aim to teach the terminology that aviation professionals need but it is included to provide a context for the plain English needed for communication between pilots and air-traffic controllers. The main focus is on the language needed to communicate in non-routine and / or emergency situations during flight operations.

All of the material you need to use *Check Your Aviation English* is included here; the CD contains all of the recordings for the listening activities as well as sample answers for the picture description exercises. The scripts for all the radiotelephony activities (Exercise 3 in each unit) have been checked for accuracy and authenticity by Oxford Aviation Academy. Recording scripts and answers can all be found at the end of the book.

The authors have endeavoured to adhere to ICAO / CAP 413 practice. However, not all the scripts conform exactly to those criteria, just as in real life not all RT and / or verbal intercommunications adhere precisely to them. In some cases, therefore, scripts have been written to reflect the natural ebb and flow of aviation communication, whilst remaining within the overall spirit of ICAO and CAP 413 guidance.

Student's Book

Each of the main units in the Student's Book contains six main activities.

Activity 1 – Describe the picture

This is based on a picture of an aviation-related incident and you need to describe what you can see in the picture. A number of words are given to guide you and a model answer is also provided on the accompanying CD for you to compare your answer to. The second half of this activity provides follow-up questions which can be used to help you extend your answer.

Activity 2 – Plain English

This activity is based on a recording related to flight operations.There are two sections; the first introduces the recording and asks you to identify the main theme of the recording while the second focuses on details.

Activity 3 – Radiotelephony

Here you will listen to a radiotelephony recording based on an emergency or non-routine flight operation scenario and you will have to answer a number of questions about it. It always contains a listening text or texts involving a radiotelephony exchange with a mixture of phraseology and plain English.

Activity 4 – Clarification

This activity aims to practise clarification techniques. If you are using this book in class you will work with a partner to role play a dialogue. If you are studying independently consider carefully what you would say in the situation and then check your answers in the back of the book.

Activity 5 – Vocabulary Check

There are two sections here to check the main vocabulary you need to talk about the subject of the unit. In the first section you have to match items to their definitions while in the second you have to complete a text with the same items so that you can see how they function in context. You may need to change the forms of some of the words.

Activity 6 – Discussion

In this activity there is an opportunity to answer further questions on the topic of the unit and also to practise and use all of the vocabulary you have learnt within a meaningful context.

In addition you will find a progress test after every five units in the book and two review tests at the end of the book to check how much you can remember.

We hope that you enjoy using *Check Your Aviation English.*

Good luck!

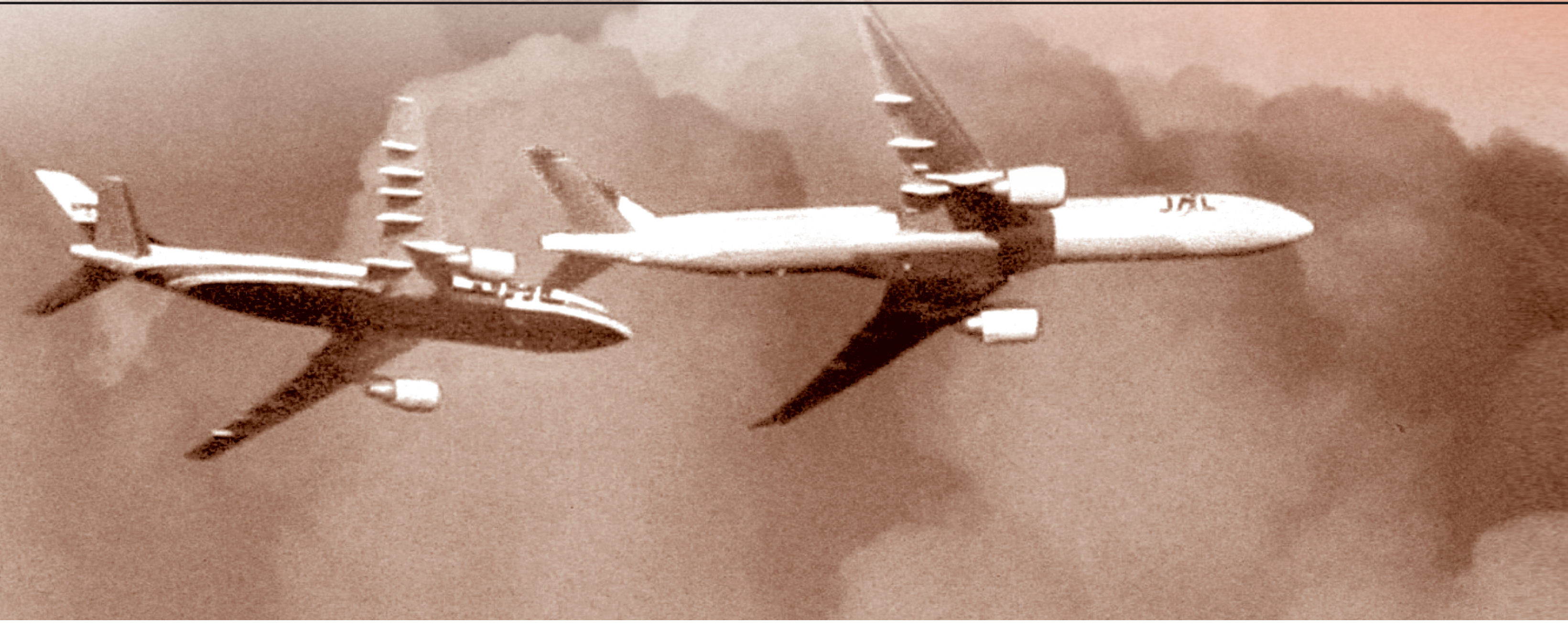
Henry Emery
Andy Roberts

ICAO RATING

Level	Pronunciation Assumes a dialect and / or accent intelligible to the aeronautical community.	Structure Relevant grammatical structures and sentence patterns are determined by language functions appropriate to the task.	Vocabulary
Expert 6	Pronunciation, stress, rhythm and intonation, though possibly influenced by the first language or regional variation, almost never interfere with ease of understanding.	Both basic and complex grammatical structures and sentence patterns are consistently well controlled.	Vocabulary range and accuracy are sufficient to communicate effectively on a wide variety of familiar and unfamiliar topics. Vocabulary is idiomatic, nuanced and sensitive to register.
Extended 5	Pronunciation, stress, rhythm and intonation, though influenced by the first language or regional variation, rarely interfere with ease of understanding.	Basic grammatical structures and sentence patterns are consistently well controlled. Complex structures are attempted but with errors which sometimes interfere with meaning.	Vocabulary range and accuracy are sufficient to communicate effectively on common, concrete and work-related topics. Paraphrases consistently and successfully. Vocabulary is sometimes idiomatic.
Operational 4	Pronunciation, stress, rhythm and intonation are influenced by the first language or regional variation, but only sometimes interfere with ease of understanding.	Basic grammatical structures and sentence patterns are used creatively and are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.	Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete and work-related topics. Can often paraphrase successfully when lacking vocabulary in unusual or unexpected circumstances.
Pre-Operational 3	Pronunciation, stress, rhythm and intonation are influenced by the first language or regional variation, and frequently interfere with ease of understanding.	Basic grammatical structures and sentence patterns associated with predictable situations are not always well controlled. Errors frequently interfere with meaning.	Vocabulary range and accuracy are often sufficient to communicate on common, concrete and work-related topics but range is limited and word choice often inappropriate. Is often unable to paraphrase successfully when lacking vocabulary.
Elementary 2	Pronunciation, stress, rhythm and intonation are heavily influenced by the first language or regional variation, and usually interfere with ease of understanding.	Shows only limited control of a few simple memorized grammatical structures and sentence patterns.	Limited vocabulary range consisting only of isolated words and memorized phrases.
Pre-Elementary 1	Performs at a level below the Elementary level.	Performs at a level below the Elementary level.	Performs at a level below the Elementary level.

Fluency	Comprehension	Interactions
Able to speak at length with a natural, effortless flow. Varies speech flow for stylistic effect, e.g. to emphasize a point. Uses appropriate discourse markers and connectors spontaneously.	Comprehension is consistently accurate in nearly all contexts and includes comprehension of linguistic and cultural subtleties.	Interacts with ease in nearly all situations. Is sensitive to verbal and non-verbal cues, and responds to them appropriately.
Able to speak at length with relative ease on familiar topics, but may not vary speech flow as a stylistic device. Can make use of appropriate discourse markers or connectors.	Comprehension is accurate on common, concrete and work-related topics and mostly accurate when the speaker is confronted with a linguistic or situational complication or an unexpected turn of events. Is able to comprehend a range of speech varieties (dialect and / or accent) or registers.	Responses are immediate, appropriate and informative. Manages the speaker / listener relationship effectively.
Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on transmission from rehearsed to formulaic speech to spontaneous interaction, but this does not prevent effective communication. Can make limited use of discourse markers or connectors. Fillers are not distracting.	Comprehension is mostly accurate on common, concrete and work-related topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.	Responses are usually immediate, appropriate and informative. Initiates and maintains exchanges even when dealing with an unexpected turn of events. Deals adequately with apparent misunderstandings by checking, confirming or clarifying.
Produces stretches of language but phrasing and pauses are often inappropriate. Hesitations or slowness in language processing may prevent effective communication. Can make limited use of discourse markers or connectors. Fillers are sometimes distracting.	Comprehension is often accurate on common, concrete and work-related topics when the accent or variety used is sufficiently intelligible for an international community of users. May fail to understand a linguistic or situational turn of events.	Responses are sometimes immediate, appropriate and informative. Can initiate and maintain exchanges with reasonable ease on familiar topics and in predictable situations. Generally inadequate when dealing with an unexpected turn of events.
Can produce very short, isolated, memorized utterances with frequent pausing and a distracting use of fillers to search for expressions and to articulate less familiar words.	Comprehension is limited to isolated, memorized phrases when they are carefully and slowly articulated.	Response time is slow, and often inappropriate. Interaction is limited to simple routine exchanges.
Performs at a level below the Elementary level.	Performs at a level below the Elementary level.	Performs at a level below the Elementary level

NEAR MISS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

angle starboard twin smaller tail obscured

1.01 Now listen to the sample answer.

1b Answer the questions.

1 Which aircraft is nearer the ground?
2 Where was the photographer in relation to the aircraft?
3 Are there any markings on the aircraft?
4 What do you think will happen next?
5 Why do you think this situation occurred?

Plain English – Listening for gist

2a **1.02** Listen to a report of a near miss and choose the best summary.

a Low visibility led to near miss
b Controllers prevent collision
c Lack of communication led to near miss

Plain English – Listening for detail

2b **1.02** Listen again and underline the correct information.

1 The 757 was *heading for / coming from* Copenhagen.
2 The aircraft avoided collision by *200 / 400 / 800* feet.
3 Disaster was avoided when *a training inspector / controllers* instructed the aircraft to alter course.
4 The report recommends that radar screens be *improved / changed.*

Radiotelephony – Listening

3a **1.03** Listen to the dialogue. Write the call signs in the spaces to complete the summary.

The controller instructed (1) __________ to maintain its present level, and instructed (2) __________ to descend. The controller instructed (3) __________ to turn right and then gave traffic information to (4) __________. When (5) __________ failed to comply with the instruction, the ATC instructed (6) __________ to turn right. However, just after that, (7) __________ reported that he was following a TCAS RA and was climbing. (8) __________ then requested immediate descent and landing.

Radiotelephony - Plain English

3b Rearrange the words to make phrases from the dialogue.

1 squawk / incorrect / say / 4113 / readback / I / again ____________________________________

2 action / 270 / traffic / avoiding / turn / immediately / heading / hard / right / due ____________________

____

3 injuries / we / some / have ____________________

4 is / I'm / what / sorry / problem / your?

____

5 hurt / have / board / we / problems / people / on / medical / are____________________________________

Clarification

4 Work with a partner. Student A is CS-FHG maintaining 7,000 ft. Student B is an ATCO. Read the dialogue outline and decide what to say.

CS-FHG	Control
Report time and position. Declare AIRPROX	Request confirmation
Give confirmation and details of AIRPROX	Acknowledge and request details of AC
Give details of AC	Request more information about AC
Give more information	Acknowledge and request report on landing

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

abort (v) distance (n) close (adj) risk (n)
deviate (v) airprox (n) collision (n) potential (n)

1 The name for a 'near miss' in aviation
2 The amount of space between two things
3 Possible or likely in the future
4 To stop something before it is finished
5 To do something different to what is expected
6 Near
7 When something crashes into something
8 The possibility that something dangerous might happen

5b Complete the strategies for avoiding mid-air collisions with the words from 5a.

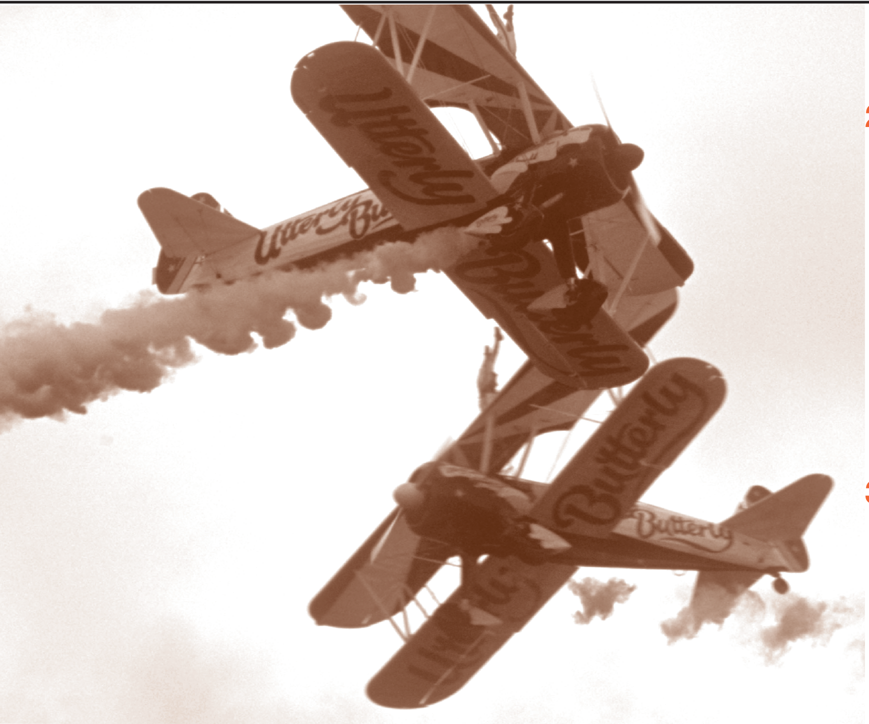
Take care when flying near an airport. The (1) _________ of a MAC is highest within five miles of an airport. Don't wait until airborne to scan for traffic. Pilots should be aware of (2)_________ conflicting traffic when on the ground. In order to ensure separation the correct (3)_________ must be maintained at all times. Inform ATC if you are forced to (4)_________ from your course. Whether IFR or VFR constant vigilance is necessary to stop an (5) _________ leading to a (6)_________. If an aircraft on the ground is (7)_________ to the active runway it may be necessary to (8) _________ landing.

Discussion

6 Discuss the questions with a partner.

1 Describe a near miss experience you've had or know of.
2 What do you think are the major causes of mid-air collisions?
3 What can be done to reduce mid-air collisions?
4 What technology exists to help reduce the threat of mid-air collisions?
5 Do you think the incidence of mid-air collisions will increase or decrease in the future?

SPECIAL FLIGHTS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

vintage formation smoke trail aircraft markings aerobatic manoeuvre

1.04 Now listen to the sample answer.

1b Answer the questions.

1 What are the aircraft doing?
2 What do you think are the speed and altitude of the aircraft?
3 Why are there smoke trails coming from the aircraft?
4 What do you think will happen next?
5 Who do you think took the photograph?

Plain English – Listening for gist

2a **1.05** Listen to an air-traffic controller talking about Instrument Flight Rules (IFR) arrivals to an air show. Tick (✓) the things he mentions.

☐ weather
☐ communications
☐ approach fixes
☐ approach speeds
☐ touch-down zones
☐ missed approach

Plain English – Listening for detail

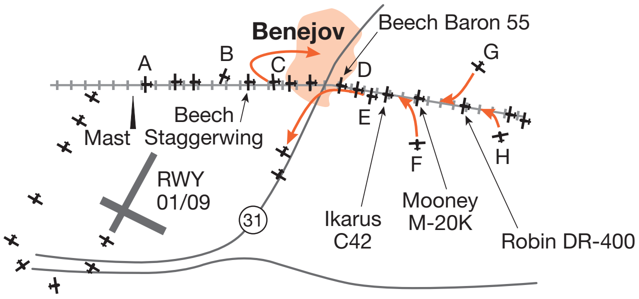
2b **1.05** Listen again and decide if the sentences are true or false. Write *T* or *F*.

1 VFR pilots have to read back ATC instructions.
2 VFR pilots acknowledge messages by rocking their wings.
3 Aircraft land on the runway one after another.
4 VFR traffic usually lands in front of IFR traffic.
5 IFR traffic flies slower than normal on short final.

Radiotelephony – Listening

3a **1.06** Listen to an approach controller sequencing traffic for the Benejov air show. Match the letters (A-H) on the chart with the aircraft 1-8.

1 Cessna 182 Skylane
2 Grumman Duck
3 Grumman Tiger
4 Extra 300
5 Boeing Stearman
6 Piper Seneca
7 Socata TB9
8 Auster J59 Alpine



Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 I / see / blue and white / high-wing / can / Benejov / a / east of ____________________

2 keep / until / up / west of / your gear / Benejov ____________________

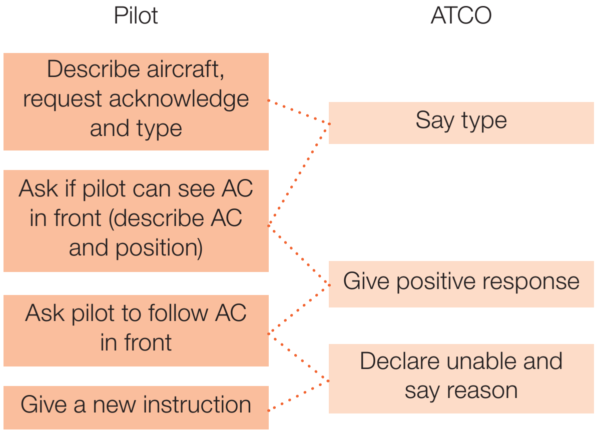
3 and get / turn / behind / in line / the Ikarus / left ____________________

4 flown / from / you've / tracks / railway / the / away ____________________

5 up / you / the Staggerwing / to be / is going / for / ahead / slow / too ____________________

Clarification

4a Work with a partner. Student A is an air show ATCO. Student B is a pilot on approach. Read the dialogue outline and decide what to say.



Pilot	ATCO
Describe aircraft, request acknowledge and type	
	Say type
Ask if pilot can see AC in front (describe AC and position)	
	Give positive response
Ask pilot to follow AC in front	
	Declare unable and say reason
Give a new instruction	

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

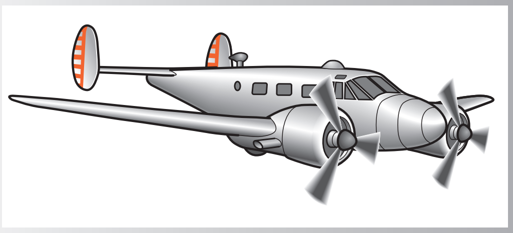
5a Match the words in the box with the definitions.

air show (n) bi-plane (n) twin-engine (n) low-wing (n)
amphibious (adj) floatplane (n) high-wing (n) routine (n)

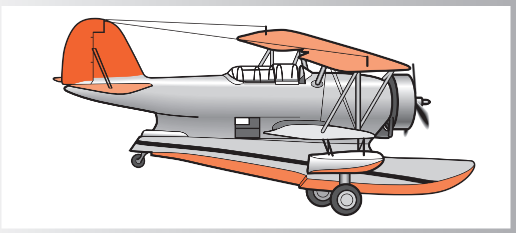
1 An aircraft with the wings' lower surface level with or below the bottom of the fuselage
2 Describes a vehicle that can operate both on water and on land
3 An aircraft with the wings' upper surface level with or above the top of the fuselage
4 An aircraft equipped with floats for landing on or taking off from a body of water
5 A set of manoeuvres that a pilot performs
6 A public display of aircraft in flight and on the ground, held at an airfield
7 An aircraft with two identical engines
8 An aircraft with two wings fixed at different levels

5b Complete the extracts from a book about aircraft with the words from 5a.

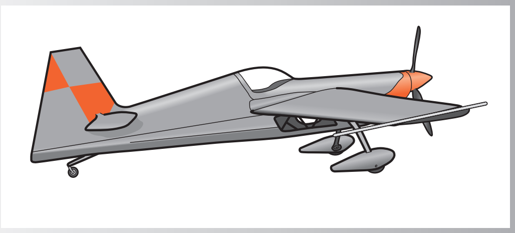
a The Beechcraft Model 18, a (1) ________ (2) ________ aircraft which entered service in January 1937.



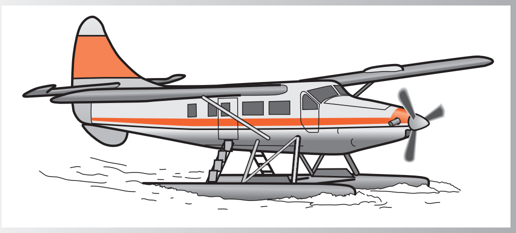
b The Grumman Duck, an (3) ________ (4) ________ used by both the US Navy and Coast Guard.



c The Zivko Edge 540, a highly aerobatic aircraft often seen performing (5) ________ at (6) ________ such as the Red Bull Air Race.



d The popular (7) ________ variant of the (8) ________ single-engine De Havilland DHC-3 Otter.



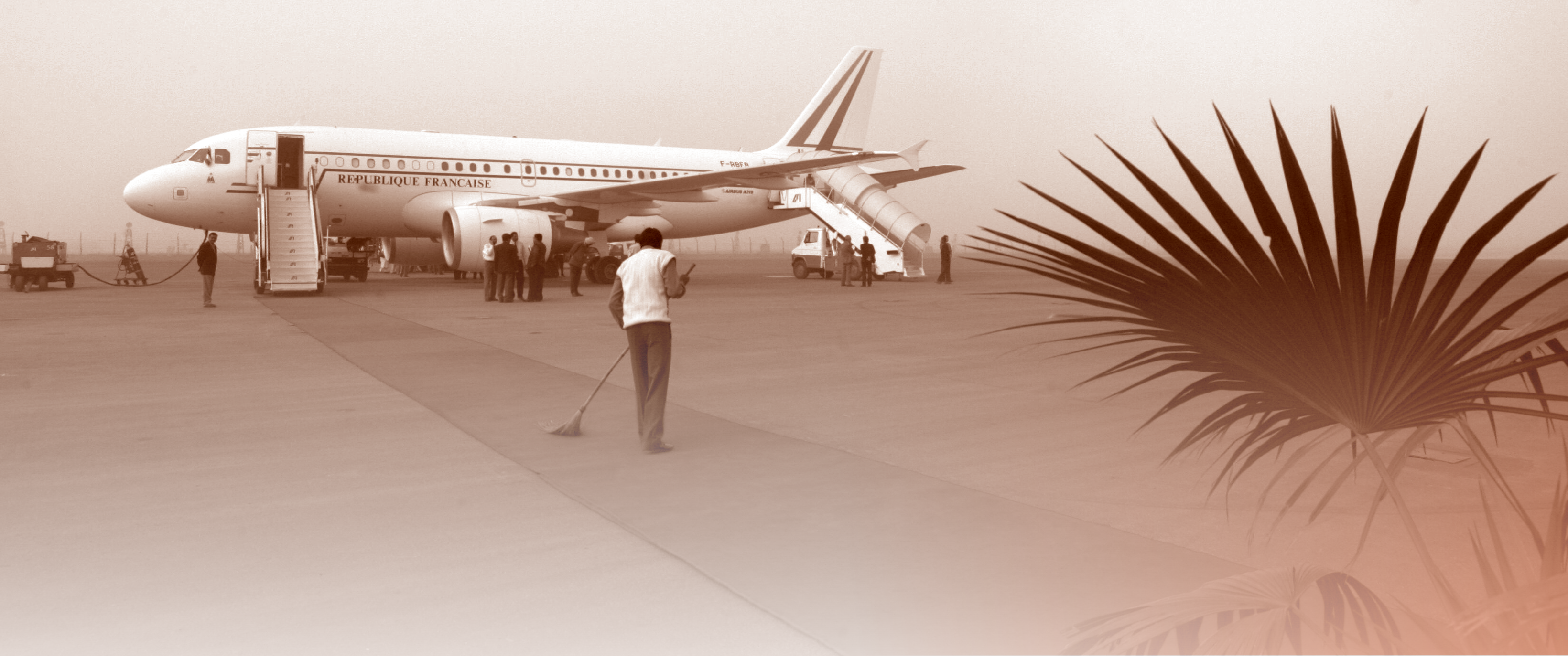
Discussion

6 Discuss the questions with a partner.

1 Have you ever been to an air show? What was it like?
2 What usually happens at an air show?
3 Why do people attend air shows?
4 Do you have this type of activity in your country? Where? When?
5 What sort of special training do pilots and / or ATCs have for air shows?

Unit 3

VIP FLIGHTS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

dispersal air stair APU palm baggage visibility

1.07 Now listen to the sample answer.

1b Answer the questions.

1 What kind of person is the flight for?
2 Why are there so many people by the aircraft?
3 Where are the people standing in relation to the aircraft?
4 How long after the landing do you think the photo was taken? Why?
5 What do you think will happen next?

Plain English – Listening for gist

2a 1.08 Listen to an interview about the effects of VIP flights on airports. Choose the best summary of the official's views.

a Closures due to VIP flights are inconvenient but necessary.
b VIP flights cause problems and should be directed to air force bases.
c VIP flights should be kept to a minimum.

Plain English – Listening for detail

2b 1.08 Listen again and tick (✓) the problems that are mentioned.

☐ cancelled flights
☐ controllers' stress
☐ heart attacks
☐ poor maintenance
☐ overheating
☐ congestion anxiety
☐ mid-air panic
☐ runway incursions
☐ swine fever

Radiotelephony – Listening

3a 1.09 Listen to the dialogue. Decide if the sentences are true or false. Write *T* or *F*.

1 London informed Cargolux 223 there would not be a delay.
2 Bad weather is causing delays to all inbound and outbound aircraft.
3 The pilot's NOTAM says that there are no delays to passenger and cargo flights.
4 Cargolux is low on fuel.
5 Cargolux will have no more than a five-minute wait.
6 Cargolux has to hold at VATON.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 hold / we / VATON / to / at / confirm / have

____

2 are excepted / says scheduled air carriers / but our / NOTAM / and cargo flights / understood

____

3 that information / we did / before leaving / not get / unfortunately / JFK ________________________

4 our alternate, Gatwick, / a clearance / we will have / if we / cannot get / to take ____________________

5 on / Airforce / is / One / now / ILS ____________

____

Clarification

4a Work with a partner. Student A is PNF. Student B is PF. Read the dialogue outline and decide what to say.

PNF	PF
Tell PF that Omsk Radar has said there'll be a delay	
	It's unexpected – ask for confirmation
Explan it's because of a VIP	
	The NOTAM says no delay
It was amended for security	
	Acknowledge but say low on fuel
Suggest Kirsk as alternate	
	Will take alternate if no clearance in five minutes

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

priority (n) amendment (n) officials (n) panic (v)
domestic (adj) facilities (n) disruption (n) scheduled (adj)

1 Important people in an organization
2 Something such as buildings or equipment that people can use
3 According to a timetable
4 A change made to a document or plan
5 Referring to or belonging inside a country
6 A situation when something cannot continue as normal because of a problem
7 To have a sudden strong feeling of fear or terror
8 The order of importance or urgency

5b Complete the briefing on VIP visits with the words from 5a.

There have been some (1) __________s to our original plan. But there is no need to (2) __________ – VIP flights will still receive (3) __________ but we wish to avoid (4) __________to our international flights. Any (5) __________ passengers who are (6) __________ to fly at the time of a VIP visit will be delayed. However we will provide refreshment (7) __________ free of charge for these passengers. We want to encourage visits by important (8) __________ while at the same time allowing our international passengers to travel as normal.

Discussion

6 Discuss the questions with a partner.

1 Describe a VIP flight you know of.
2 What difficulties can VIP flights cause?
3 Should VIP flights be treated differently to other flights? Why? / Why not?
4 Who should be classed as VIPs?
5 What type of aircraft will transport VIPs in the future?

Unit 4

DELAYS

Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

commercial sequence instrument configuration final radar

1.10 Now listen to the sample answer.

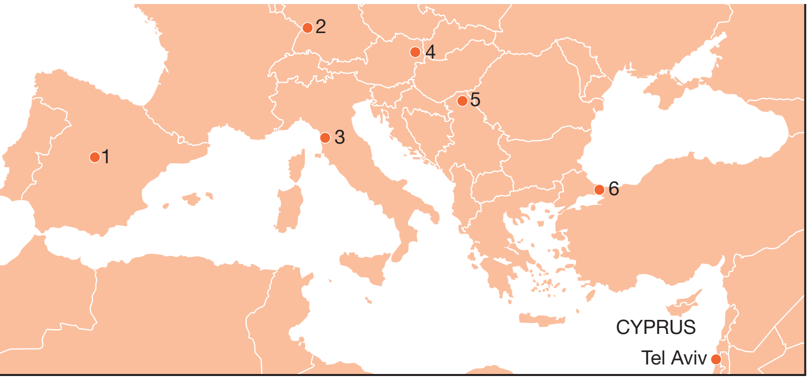
1b Answer the questions.

1 What time of day is it?
2 What sort of airfield are the aircraft flying into?
3 How far do you think they are from the runway?
4 What heading do you think the aircraft are flying?
5 What do pilots typically do at this phase of flight?

Plain English – Listening for gist

2a 1.11 Listen to the briefing and match the problems in the box to the places on the map.

CBs personnel shortage thunderstorms and rain aerodrome capacity military activity construction



Plain English – Listening for detail

2b 1.11 Listen again and answer the questions.

1 Where is there a regulation that lasts all day?
2 Where have ATC taken some measures to improve flow?
3 Where might improvements be seen in traffic flow?
4 Where has the longest delays?
5 Which country will be affected by the regulation in Cyprus?
6 Where might regulations continue into the afternoon?

Radiotelephony – Listening

3a 1.12–1.16 Listen to five dialogues (a–e) between pilots and air-traffic controllers. Match each dialogue with a reason for delay. There is one extra reason.

1 Vehicles are clearing the runways ______
2 Low visibility ______
3 An aircraft has broken down ______
4 Busy airspace ______
5 Lack of parking space ______
6 Liquid on the apron ______

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 runway / we / a / have / aircraft / disabled / on
____

2 outside / sector / controlled / saturation / remain / due / airspace ______________________________

3 spillage / there / is / a / you / the / on / ramp / behind
____

4 can we / lower / have / due / chop / level? / speed / at / this ______________________________

5 the weather? / do you / have / for / an estimate / an improvement / in ______________________________

Clarification

4a Work with a partner. Student A is the first officer of a passenger jet aircraft, call sign Transtar 322, on descent to Polomir. Student B is an approach ATCO at Polomir Approach. Read the dialogue outline and decide what to say.

First Officer	Approach ATCO
Contact Approach Control and say position	Acknowledge, give instructions to hold and say duration
Readback and request reason for delay	Say reason for delay
Request repetition of reason	Paraphrase reason
Acknowledge reason	

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

---

disable (v) work (n) spillage (n) removal (n) issue (n)
saturation (n) regulations (n) exercise (n)

---

1 A problem that needs to be considered
2 An activity that you do in order to learn how to do something
3 To stop a piece of equipment from working
4 When something is so full that nothing can be added
5 Control of an activity or process by official rules
6 The repairing and building of something
7 When liquid has accidentally been poured out of its container
8 The process of taking something away from a place

5b Complete the ATC comments about delays with the words from 5a.

a I work at an airfield with joint operations, and military training (1) __________ sometimes cause delays for civil traffic.

b Both in terms of operations and passenger comfort, the (2) __________ in progress on the new runway is causing real problems for us.

c We have protective (3) __________ in place every day, but we still have problems with sector (4) __________. It sometimes happens that we exceed capacity by over 10%.

d We had so much unexpected snow last winter. Snow (5) __________ caused major disruptions because we just weren't equipped with enough snow ploughs.

e I think ATC everywhere suffers with staffing (6) __________. There just aren't enough controllers!

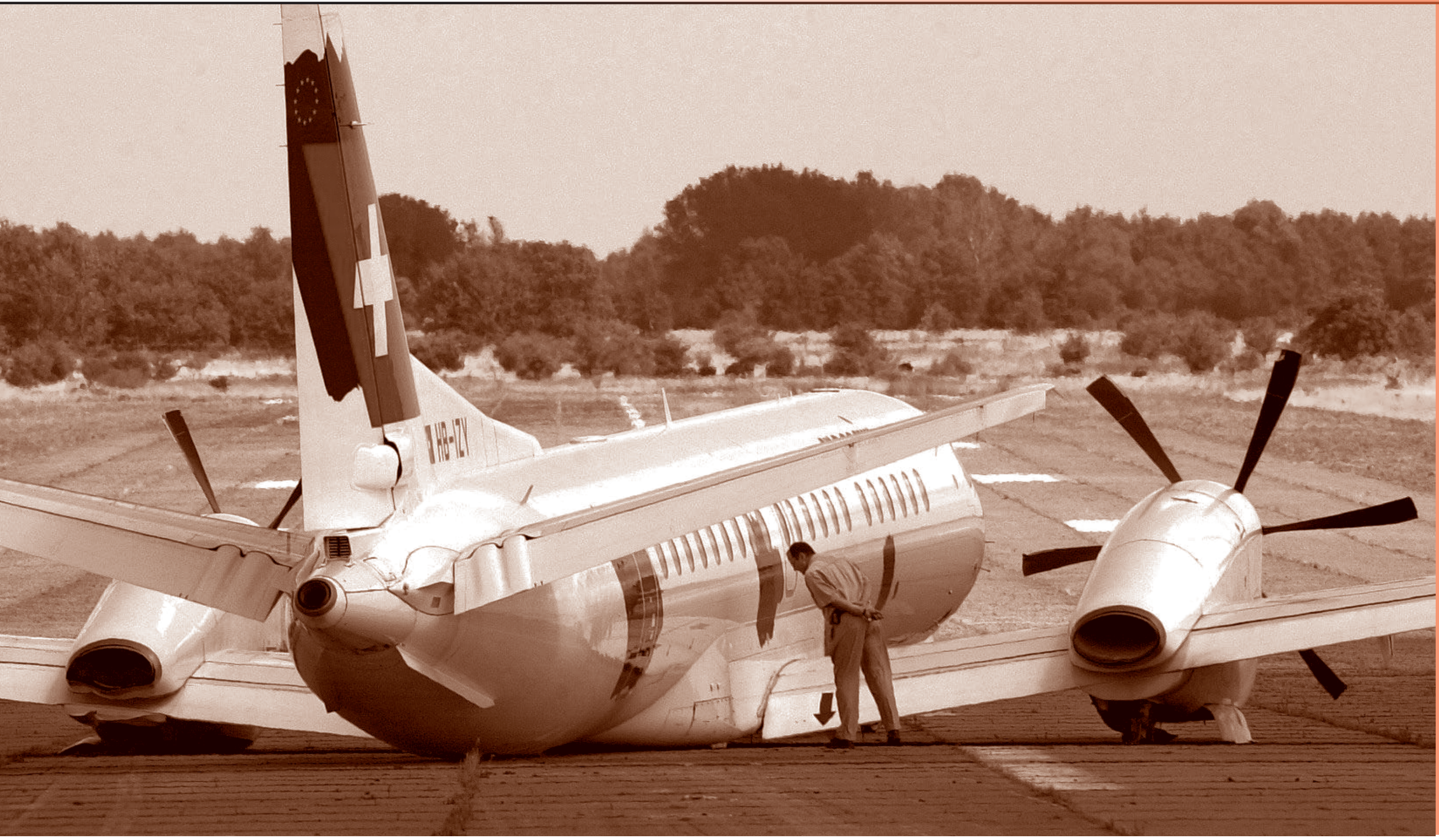
f Just this week two incidents caused delays on my shift. The first was a fuel (7) __________ on the apron, and the second was a (8) __________ aircraft on a taxiway which prevented heavy aircraft vacating.

Discussion

6 Discuss the questions with a partner.

1 What are the longest delays you have encountered in your work?
2 What things typically cause delay where you work?
3 Do most delays occur on the ground or in the air?
4 What actions can ATC take to manage congestion and delay?
5 Will delays increase or decrease in the future? Why?

BELLY–LANDINGS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

medium emblem gear standing propeller horizon

1.17 Now listen to the sample answer.

1b Answer the questions.

1 Where is the man in relation to the aircraft?
2 Where do you think this incident occurred?
3 What markings are there on the aircraft?
4 What do you think caused the accident?
5 What do you think will happen next?

Plain English – Listening for gist

2a 1.18 Listen to an interview with an airport spokesman about a no-gear landing. Why did the aircraft execute a belly-landing?

Plain English – Listening for detail

2b 1.18 Listen again put the sentences in the correct chronological order.

a The aircraft hit the runway.
b The pilot decided to land.
c The crew switched the GPWS system off.
d The 757 started to take off.
e The crew realized the gear was not down.
f The pilot saw a 757 on the runway.

Radiotelephony – Listening

3a 1.19 Listen to the dialogue. Answer the questions.

1 What was the unsafe indication?
2 Which runway was PHG3002 cleared to land on?
3 What was the cloud base?
4 Why did PHG3002 request a visual inspection?
5 What did the tower see?
6 What was the fuel state of PHG3002?

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 gear / right / indication / PHG3002 has / unsafe / main ______________________________

2 wheels / low / are down / to confirm / request / pass ______________________________

3 500 ft / we / level / will / at ______________

4 distance / runway / established / zero four / at / localizer / eight nautical miles ______________

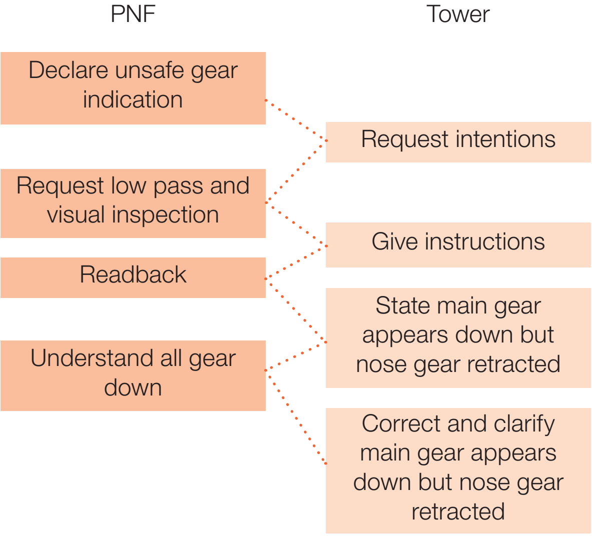
____

5 wheels / all / down / appear ______________

____

Clarification

4a Work with a partner. Student A is PNF of Flyer 794, a regional jet on final approach. Student B is Tower. Read the dialogue outline and decide what to say.


PNF
Tower
Declare unsafe gear indication
Request intentions
Request low pass and visual inspection
Give instructions
Readback
State main gear appears down but nose gear retracted
Understand all gear down
Correct and clarify main gear appears down but nose gear retracted

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

collapse (v) bent (adj) skid (v) lower (v) circuit (n)
indication (n) appear (v) undercarriage (n)

1 To slide across the ground in an uncontrolled way
2 A pattern of flight from take-off to touch-down
3 A sign
4 To let something down
5 In a twisted or curved shape
6 To fold or fall down suddenly
7 To seem to be
8 Landing gear

5b Complete the report on a gear-up landing with the words from 5a.

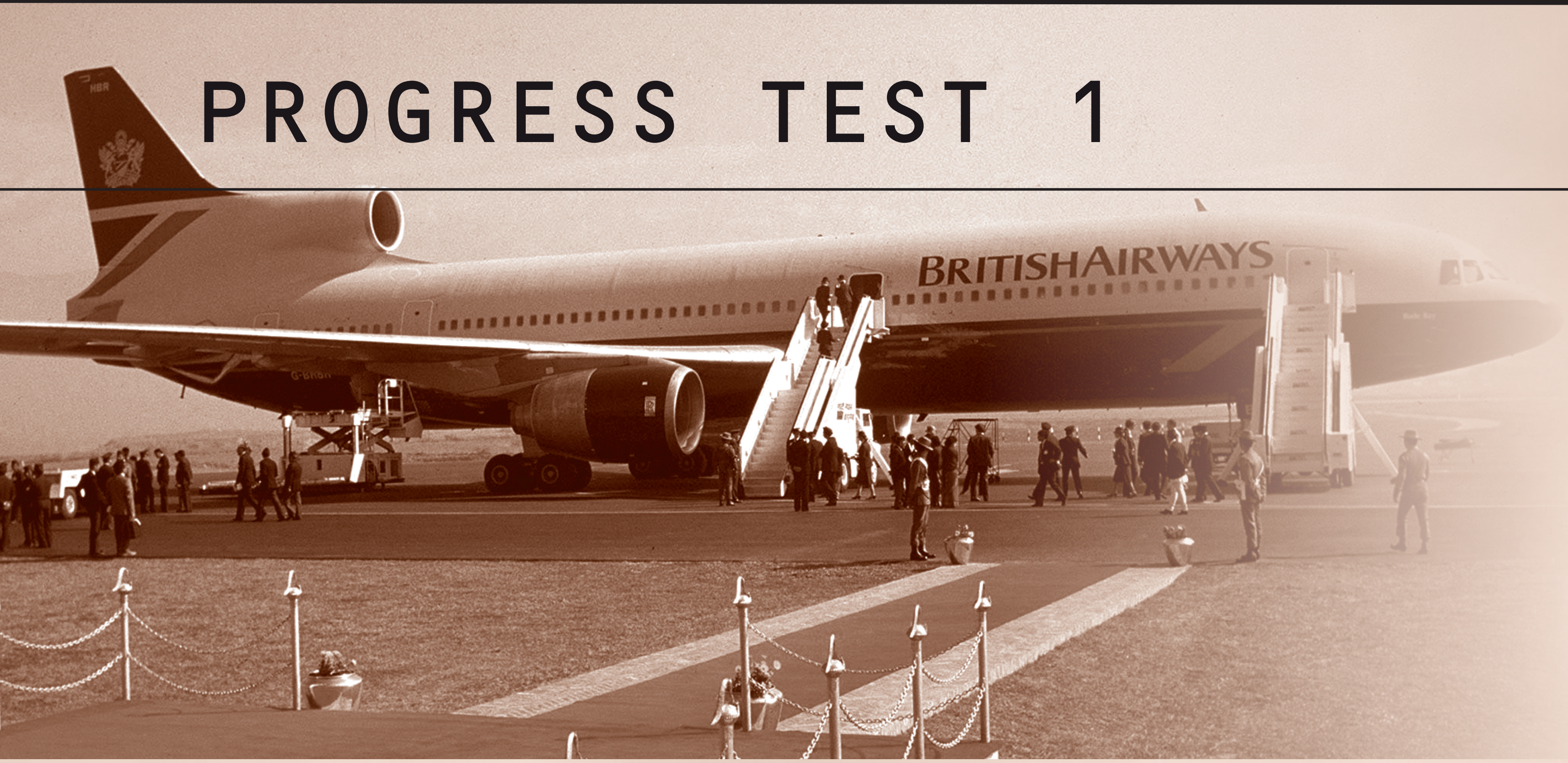
The crew reported a red (1)__________ light and were unsure if the (2)__________ had (3) __________ correctly. They flew a left-hand (4) __________ for the tower to make a visual inspection. Everything (5) __________ OK. However on landing the main gear (6) __________ and the aircraft (7) __________ along the runway. The propeller blades were (8)__________ where they made contact with the ground.

Discussion

6 Discuss the questions with a partner.

1 Describe a no-gear landing you have had or have heard about.
2 Is it worse to lose nose gear or main gear? Why?
3 Describe how to manually retract landing gear.
4 What can be done to prevent landing gear problems?
5 What changes do you think will be made to aircraft landing gear in the future?

PROGRESS TEST 1



Describe the picture

1a Describe what you can see in the picture.

1b Answer the questions.

1 What kind of passenger would have a flight like this?
2 Who do you think all the people are by the aircraft?
3 Where are the people standing in relation to the aircraft?
4 Do you think the aircraft has just landed or is getting ready to depart? Why?
5 What do you think will happen next?

1.20 Now listen to the sample answer.

Plain English – Listening for gist

2a 1.21 Listen to a news report about a near miss. Choose the most suitable summary.

a Yuri is an experienced air-traffic controller whose quick thinking prevented two aircraft from colliding. This is another example of the heroic work of an anonymous group of controllers.
b Yuri is an experienced air-traffic controller whose quick thinking prevented two aircraft from colliding. Usually controllers are anonymous but Yuri has received a lot of praise from the public.
c Yuri was an experienced air-traffic controller whose quick thinking prevented an Airbus and a Tupolev from colliding. He is unable to sleep because of the incident and has had to retire.

Plain English – Listening for detail

2b 1.21 Listen again and explain what the following refer to.

1 Krasnodar
2 302
3 10
4 10
5 200
6 15

Radiotelephony – Listening

3a 1.22 Listen to the dialogue. Put the events in the correct order.

a The ATCO suggests runway 16L for landing.
b The pilot requests a touch-and-go.
c The pilot reports that they will land on the left side of the runway.
d The ATCO reports the right main gear is retracted.
e The pilot reports a high-load manoeuvre failed to free the gear.
f The pilot requests fire and rescue services.

Radiotelephony – Plain English

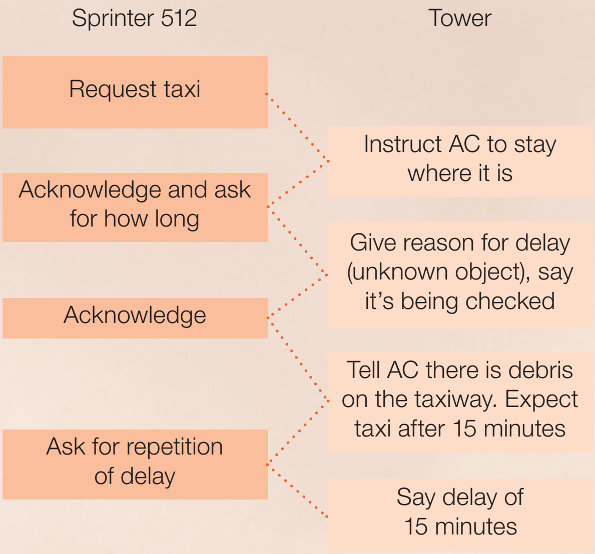
3b 1.22 Match the beginnings with the endings to make phrases from the dialogue.

1 The steep turn didn't shift the
2 We'd like to try a touch and go to
3 Which is the best runway
4 There is plenty of space either side
5 Be advised we're likely to

a veer to the right on the runway.
b gear so we're still indicating gear up.
c of the runway should you need it.
d see if that loosens the right gear.
e for an abnormal gear landing?

Clarification

4a Work with a partner. Student A is pilot of Sprinter 512, ready to taxi. Student B is Tower. Read the dialogue outline and decide what to say.


Sprinter 512
Tower
Request taxi
Instruct AC to stay where it is
Acknowledge and ask for how long
Give reason for delay (unknown object), say it's being checked
Acknowledge
Tell AC there is debris on the taxiway. Expect taxi after 15 minutes
Ask for repetition of delay
Say delay of 15 minutes

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

amendment (n) collapse (v) indication (n) spill (v)
scheduled (adj) disable (v) domestic (adj) bent (adj)

1 According to a timetable
2 A change or correction made to a document or plan
3 To stop a piece of equipment or a machine from working properly
4 In a twisted or curved shape
5 To fold or fall down suddenly
6 Referring to or belonging inside a country
7 A sign
8 To accidentally pour a liquid out of its container

5b Complete the sentences with the words from 5a.

1 The pilot __________ the coffee over the GPS.

2 Recently several __________ have been made to the operating procedure.

3 The force of the impact caused the undercarriage to __________.

4 The __________ flight arrived exactly on time.

5 The smaller aircraft were used for shorter __________ flights.

6 There was no __________ of any fuel problems.

7 The propeller blades were __________ on contact with the ground.

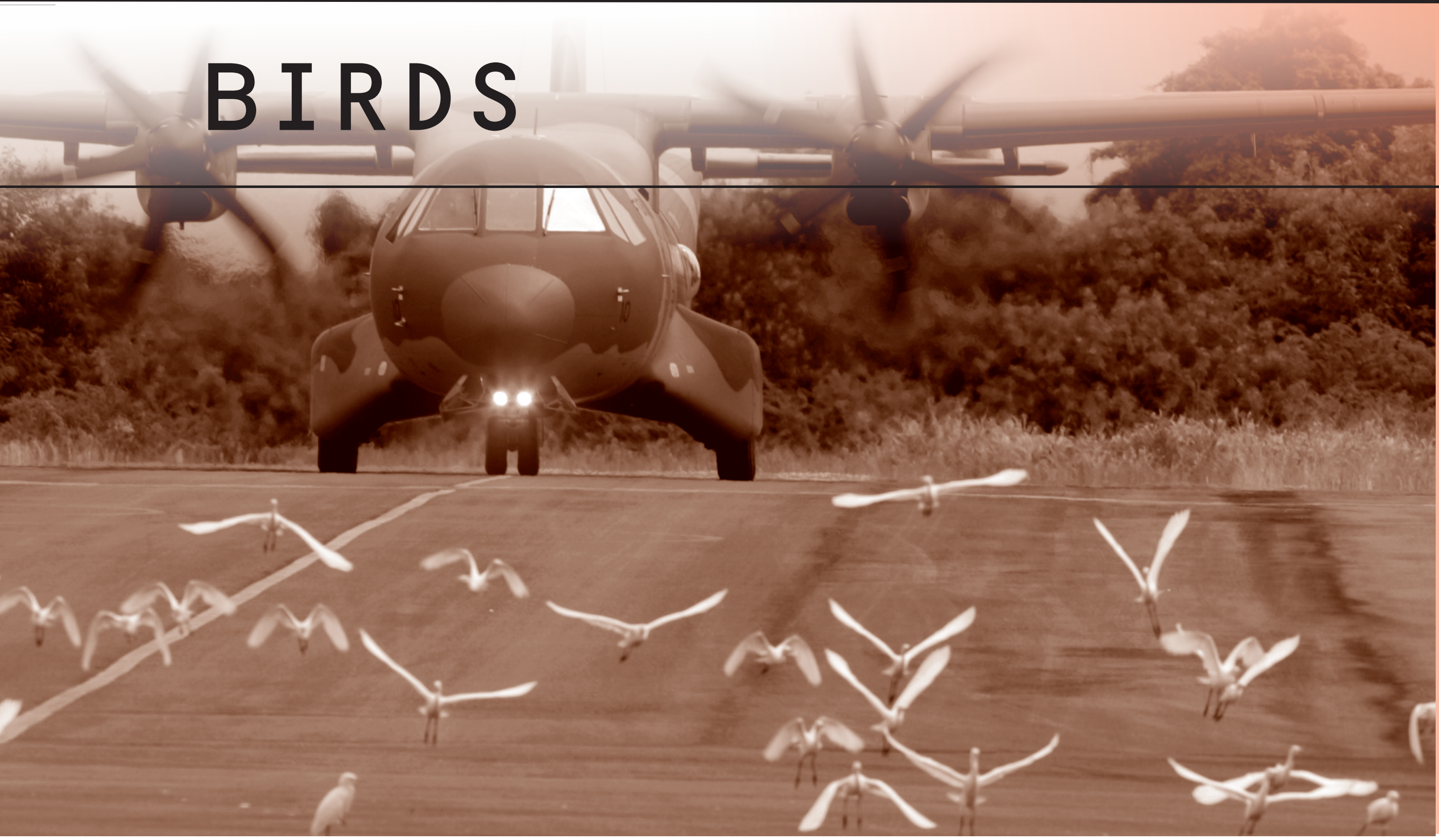
8 The sound of the alarm was irritating so the crew __________ it.

Discussion

6 Discuss the questions with a partner.

1 What can be done to prevent near misses?
2 What operational issues have to be considered when running an air show?
3 What difficulties can VIP flights cause?
4 Describe the longest delay you have encountered in your work.
5 How has landing gear developed over the last 50 years?

BIRDS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

military high-wing turboprop dip flock frightened

1.23 Now listen to the sample answer.

1b Answer the questions.

1 What do you think the pilots are doing?
2 Why are the birds moving?
3 What sort of airfield do you think it is?
4 Where was the photograph taken from?
5 What do you think will happen next?

Plain English – Listening for gist

2a 1.24 Listen to a conversation about new aviation-related technology. Answer the questions.

1 Where does the conversation take place?
2 What technology are they talking about?
3 Who does the technology serve?

Plain English – Listening for detail

2b 1.24 Listen again and decide if the sentences are true or false. Write *T* or *F*.

1 The horizontal radar tracks birds within the airfield.
2 The vertical radar covers the approach and departure corridors.
3 The aim of the technology is to track all birds.
4 The system can identify a small bird several miles away.
5 A large group of birds eight miles away can be detected by the system.
6 The system is being trialled for use in civil aviation.

Radiotelephony – Listening

3a 1.25 Listen to a dialogue between a pilot and an air-traffic controller. Put the events in the correct order.

a The pilot requests a low pass.
b The controller reports damage to the nose gear.
c The pilot reports a birdstrike.
d The pilot states anticipated control problems on landing.
e The pilot states their intention to return.
f The pilot says the nose gear won't retract.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 had / think we / I / an / impact / the / with / nose gear ______________________________

2 recycling / the / a red light / gear / I tried / we / but / have / still ______________________________

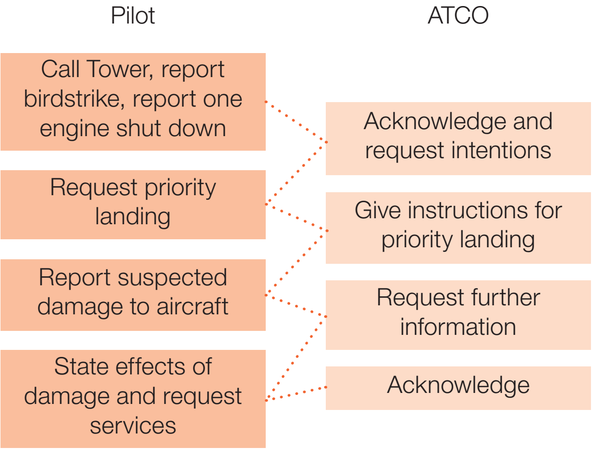
3 cable / what looks / we see / like a / or hose / loose / on your / nose gear ________________

4 I / we / have / will / believe / with / steering / the / problems / landing / on ________________

5 be / that / aware / we could / off / left / runway / the / come / to the ______________________

Clarification

4a Work with a partner. Student A is pilot of a twin-engine aircraft, call sign Arrow 545, downwind in a right-hand pattern for RWY 18. Student B is an approach ATCO at Nezabad tower. Read the dialogue outline and decide what to say.



Pilot	ATCO
Call Tower, report birdstrike, report one engine shut down	Acknowledge and request intentions
Request priority landing	Give instructions for priority landing
Report suspected damage to aircraft	Request further information
State effects of damage and request services	Acknowledge

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

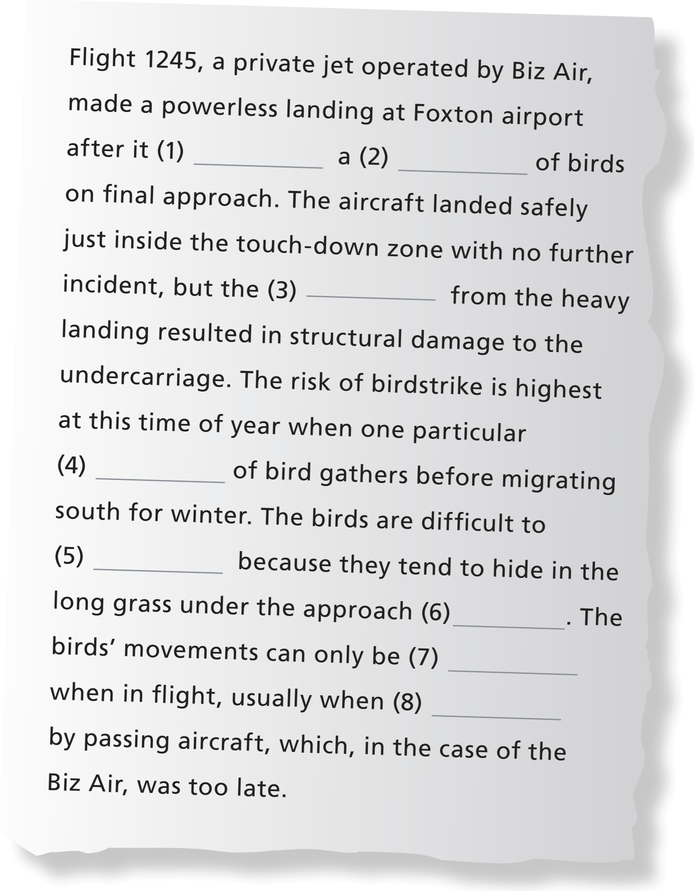
Vocabulary Check

5a Match the words in the box with the definitions.

detect (v) corridor (n) track (v) flock (n) species (n) hit (v) impact (n) frighten (v)

1 A group of birds
2 To prove that something is present
3 The force with which one object hits another
4 To move onto an object quickly and with force
5 To make an animal or a person feel afraid
6 A long, narrow area of land
7 To follow the course of a moving object
8 A group of plants or animals whose members all have similar general features

5b Complete the article on birdstrikes with the words from 5a.



Flight 1245, a private jet operated by Biz Air, made a powerless landing at Foxton airport after it (1) ________ a (2) ________ of birds on final approach. The aircraft landed safely just inside the touch-down zone with no further incident, but the (3) ________ from the heavy landing resulted in structural damage to the undercarriage. The risk of birdstrike is highest at this time of year when one particular (4) ________ of bird gathers before migrating south for winter. The birds are difficult to (5) ________ because they tend to hide in the long grass under the approach (6) ________. The birds' movements can only be (7) ________ when in flight, usually when (8) ________ by passing aircraft, which, in the case of the Biz Air, was too late.

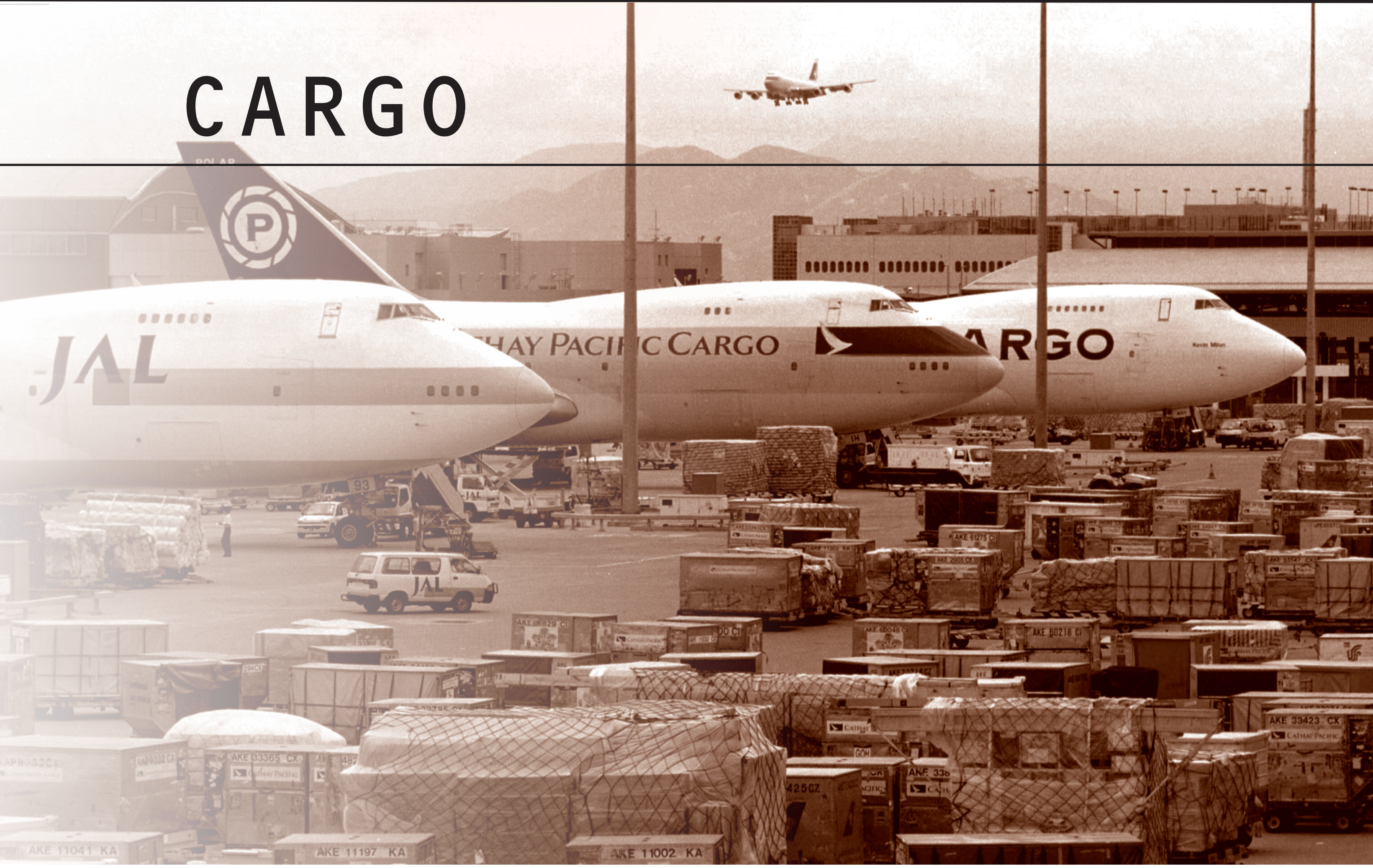
Discussion

6 Discuss the questions with a partner.

1 Describe a birdstrike incident you know of.
2 Why do birds inhabit airfield environments?
3 What measures can airports use to control birds?
4 What sort of damage can birdstrikes do to aircraft?
5 Do you think birdstrike incidents will increase or decrease? Why?

Unit 7

CARGO


POLAR
JAL
CATHAY PACIFIC CARGO
ARGO
AKE 11041 KA
AKE 11197 KA
AKE 11002 KA
AKE 33423 CX
AKE 33365 CX
AKE 60218 CI
AKE 6829 CI

Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

lined up   terminal   containers   vehicles   pallets

1.26 Now listen to the sample answer.

1b Answer the questions.

1 Is the cargo incoming or outbound?
2 Where do you think the picture was taken?
3 What items do you think are contained in the shipments?
4 What is the JAL van in the middle of the picture doing?
5 How is the cargo loaded onto / unloaded from the planes?

Plain English – Listening for gist

2a 1.27 Listen to the dialogue about cargo transportation. What two things should you do to your cargo?

Plain English – Listening for detail

2b 1.27 Listen again and answer the questions.

1 What are the benefits of containers?
2 What information should you include on your label?
3 Name five examples of unusual shipments.

Radiotelephony – Listening

3a 1.28 Listen to the dialogue. Complete the table with the correct information.

Warning	Problem
Position	Solution

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 aircraft / have / you / do / with / an / engineer? / contact ______________________________

2 not / we're / it's / if / closed / open / or / sure

____

3 that / on / if / bottom / fuel / of / door / is / Sunair / the / panel / ask / the / fuselage

____

4 panel / reports / he / that / closed / has / the / the / engineer ______________________________

5 the / is / light / confirm / extinguished / warning

____

Clarification

4a Work with a partner. Student A is a pilot of YR-YYG at stand 2 waiting to start up. Student B is a dispatch officer. Read the dialogue outline and decide what to say.

Pilot	Dispatch officer
Call Dispatch. Say aircraft and position. Ask for an engineer	Acknowledge. Ask about the problem
Say you think an inspection panel is open	Acknowledge. Ask where
Say on underside of fuselage	Confirm on the side of the fuselage
Correct the misunderstanding	Acknowledge and say you will contact an engineer

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

piece (n) pallet (n) label (n) load (v) protect (v)
wrap (v) band (n) panel (n)

1 A narrow strip of something
2 An individual object or part of something
3 A flat part of the skin of the aircraft that can be removed
4 Paper or other material used to identify an object
5 A flat surface used for transporting goods
6 To keep from danger or damage
7 To put cargo into or onto something
8 To cover something

5b Complete the insurance report with the words from 5a.

The (1) __________ of machinery was (2) __________ with a padded material. However the (3) __________ of metal securing the cargo came loose when it was (4) __________ onto the (5) __________ . When this was transported towards the hold the machinery came loose and smashed into a fuel (6) __________ . This led to significant damage to both the aircraft and the cargo. The (7) __________ on the package clearly stated 'Handle with care' and it appears that appropriate care was taken with the handling but not the packaging. In future all such cargo needs to be (8) __________ in containers.

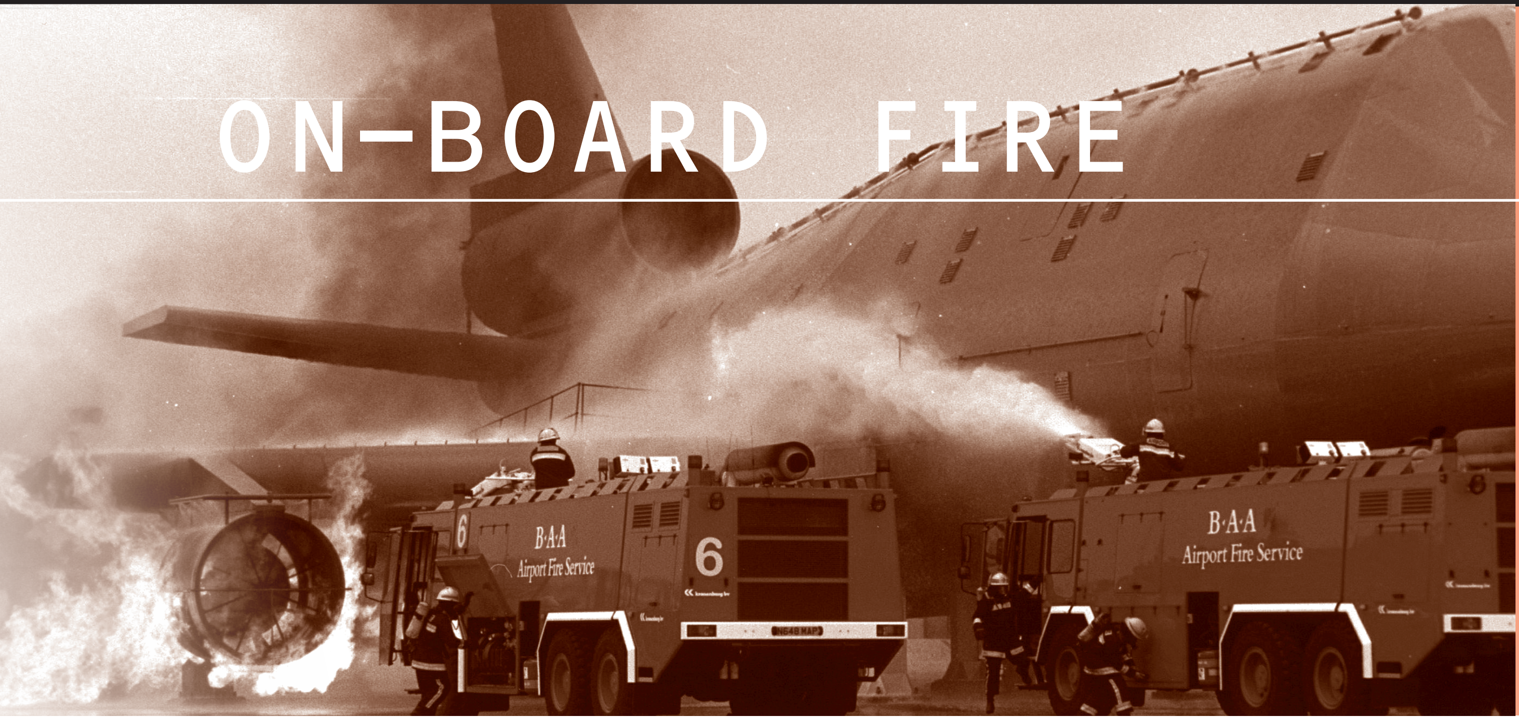
Discussion

6 Discuss the questions with a partner.

1 Describe a cargo problem you know of.
2 What is the difference between cargo and passenger flights?
3 What considerations are important when transporting cargo?
4 How has the transport of cargo changed in the last 20 years?
5 What changes do you think will happen to cargo transportation in the future?

Unit 8

ON-BOARD FIRE



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

training exercise mock-up engulfed flames
firefighters spray

1.29 Now listen to the sample answer.

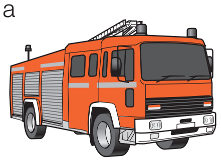
1b Answer the questions.

1 Where is this activity taking place?
2 How many people do you think are involved?
3 How long do you think the activity will last?
4 How does this sort of activity affect operations?
5 How often do you think this training happens?

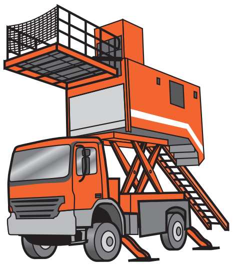
Plain English – Listening for gist

2a **1.30** Listen to a chief fire officer give a tour of an airport fire station. Mark the equipment (a–e) with the order that they are mentioned.

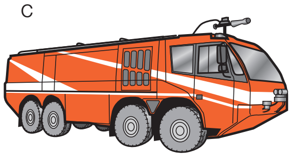
a



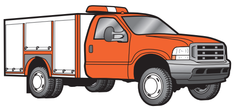
b



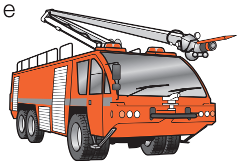
c



d



e



Plain English – Listening for detail

2b **1.30** Listen again and match the equipment (a–e) in 2a to the questions (1–5).

1 Which equipment has only been at the station for a short time?
2 Which can be used at a distance?
3 Which is a requirement for the biggest airports?
4 Which is used to manage operations?
5 Which responds to emergencies inside airport facilities?

Radiotelephony – Listening

3a **1.31** Listen to the dialogue. Underline the correct information.

1 Fire crews *are / will be* mobilized.
2 There is a fire in the *washroom / cabin*.
3 The crew *have / haven't* used a fire extinguisher.
4 The crew *will / will not* vacate the runway immediately on landing.
5 The cabin crew think the fire *is still burning / has gone out.*
6 The aircraft is instructed to taxi to a *parking gate / secure area.*

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 that / confirm / is / in / middle lavatory? / your / the fire ______________________________

2 going / continue / are / mayday / the / we / to / call

____

3 complete stop / the runway / on / a / we / make / will ______________________________

4 have / everything's / we / the cabin / from / a signal / OK / that ______________________

5 arrival / call / ground / we'll / services / your / for

____

Clarification

4a Work with a partner. Student A is the first officer of a passenger jet aircraft, call sign Circle 122, descending FL240. Student B is an en-route ATCO at Ramon centre. Read the dialogue outline and decide what to say.

First Officer	ATCO
Call Centre and report suspected cabin fire	
	Acknowledge and ask for exact location of fire
Say location, report status of fire and request immediate descent and landing	
	Acknowledge and give instructions for further descent
Readback, state fire is out and give details	
	Request confirmation of status
Confirm status and state intention to continue descent	

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

appliance (n) foam (n) mounted (adj) monitor (n)
media (n) deploy (v) halon (n) hose (n)

1 To use something
2 Fixed in position
3 A thick substance containing a lot of bubbles used for stopping fire
4 A controllable high-capacity water jet
5 A machine or piece of equipment
6 Substances that help suppress fire
7 A very long tube used for carrying water to a fire
8 A gaseous chemical compound often used in fire-suppression systems

5b Complete the advertisement with the words from 5a.

FIRETROOPER 300

The Firetrooper 300 is the latest development in remote-controlled firefighting. The (1) ____________ consists of a body that houses a powerful motor which drives the tracks and pump, and a roof (2) ____________ revolving (3) ____________ which is equipped with three nozzles. In the case of any fire that should be fought from a distance, the Firetrooper 300 can attack the fire directly, greatly increasing the effectiveness of fire-fighting operations and reducing risk to personnel.

Features

- (4) ____________ up to 5,000 litres per minute
- Drags up to 300 metres of (5) ____________
- Compatible with various liquid (6) ____________ such as water and (7) ____________
- Compatible with dry chemical and gas agents such as (8) ____________
- Top speed of eight kilometres an hour

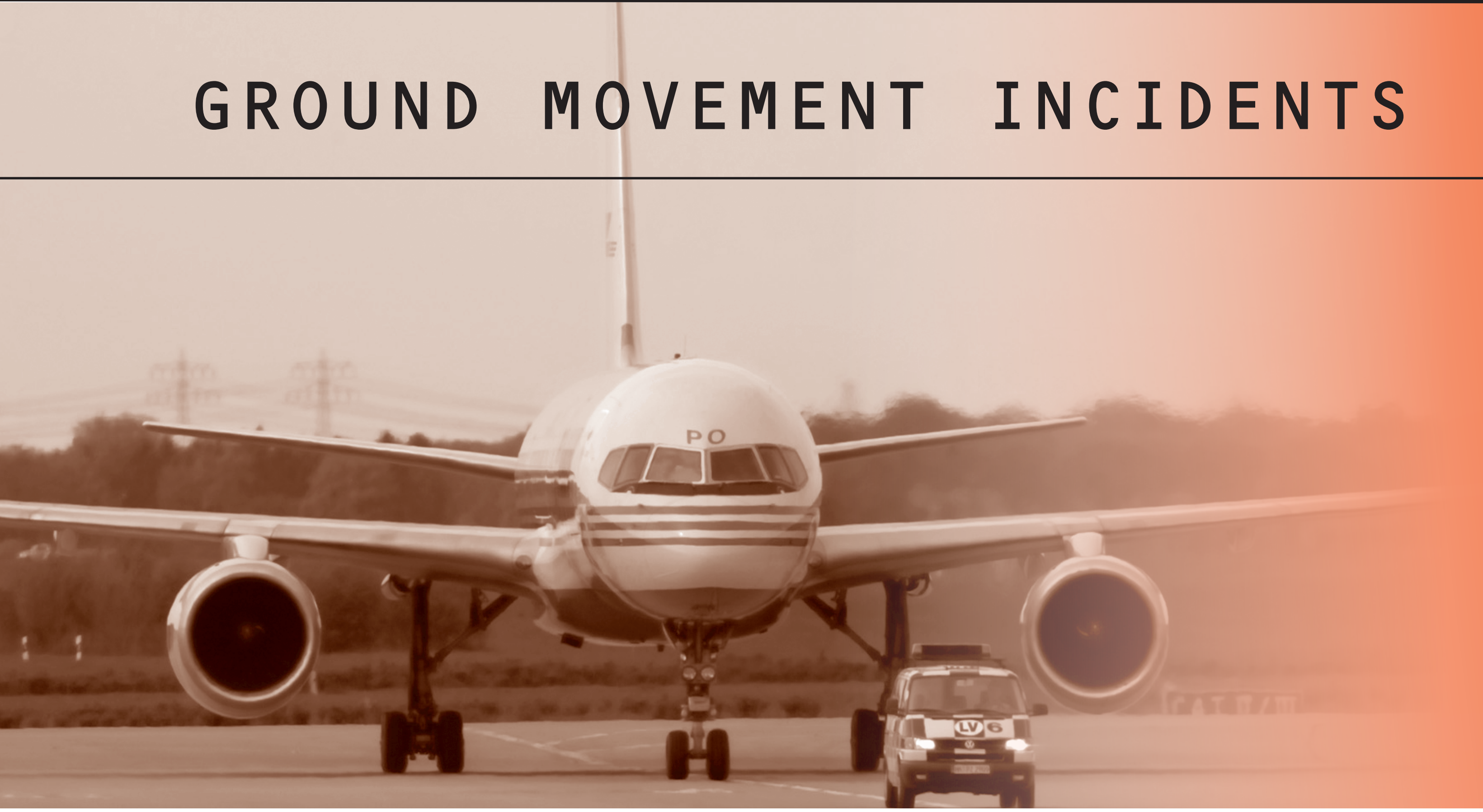
To place an order or find out more, visit **www.firetrooper.net** or call **0180 102-FIRE**

Discussion

6 Discuss the questions with a partner.

1 What training do you have to deal with fire?
2 Describe the fire equipment / installations at an airport / building you know.
3 What do you think are the main causes of aircraft fire?
4 What fire equipment do aircraft usually carry?
5 What are the effects of heat, smoke and fire on humans?

GROUND MOVEMENT INCIDENTS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

stripes follow lights line cables holding

1.32 Now listen to the sample answer.

1b Answer the questions.

1 Where is the aircraft?
2 Where was the photographer in relation to the aircraft?
3 Why is the aircraft following the car?
4 Are there any markings on the aircraft?
5 What do you think will happen next?

Plain English – Listening for gist

2a 1.33 Listen to an instructor talking about runway taxi accidents. Tick (✓) the topics the instructor mentions.

☐ mechanical problems
☐ pilot error
☐ controller error
☐ weather conditions

Plain English – Listening for detail

2b 1.33 Listen again and decide if the sentences are true or false. Write *T* or *F*.

1 Only gusting winds cause problems.
2 The biggest hazard is an aircraft hitting something.
3 Sometimes a person gets hurt spinning a propeller.
4 Usually hangars and fuel trucks get hit the most.
5 There are a lot of collisions between aircraft departing and planes waiting to cross runways.

Radiotelephony – Listening

3a 1.34 Listen to the dialogue. Write the missing words in the spaces to complete the summary.

ATC told AL6R to follow the (1) __________ to get to bay (2) __________ . They stopped at bay (3)__________ and were told they were at the wrong place. They had to follow the green light (4) __________ to their correct bay. When they got near the bay they saw the (5) __________ . The bay was to their (6) __________ . The plane cut across the (7) __________ and hit the (8) __________ ditch.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 parking / stand / confirm / we / at / 're / 116

____

2 stand / long / before / a / is / that / way / your

____

3 set / lights / 'll / you / another / we / for / of / green

____

4 in / marshaller / now / 've / sight / we / the / got

____

5 drainage / cut / have / you / hit / the / the / across / and / grass / ditch __________________________

Clarification

4a Work with a partner. Student A is a Tower ATCO. Student B is a pilot of TA 327. Read the dialogue outline and decide what to say.

Tower	TA 327
Give instructions to proceed to bay 114 by following the green lights	
	Readback bay 140
Correct the misunderstanding	
	Request confirmation bay 114
Give confirmation. Ask for position	
	Say adjacent to bay 117
Say the pilot has gone past, you'll prepare more green lights, ask if the pilot can see them	
	Give positive response

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions

follow (v) fence (n) sign (n) marshaller (n) van (n) truck (n) camouflage (n) narrow (adj)

1 A barrier made of wood or wire
2 A vehicle that is a little bit bigger than a car
3 A person who directs aircraft into parking positions
4 Used to make things look like the background
5 To travel behind something or to do as instructed
6 An object that uses words or pictures to give information
7 The opposite of *wide*
8 A large vehicle

5b Complete the sentences with the words from 5a.

1 A refuelling __________ needs to get clearance before crossing a runway.

2 A pilot needs to be able to see the arm movements of the __________ .

3 The markings on military aircraft are different to civil ones due to their __________ .

4 There is a danger that aircraft passing on a __________ taxiway could collide.

5 The __________ clearly show the taxiway letter.

6 __________ the centre line to keep in the middle.

7 The perimeter __________ keeps animals and people away from the airfield.

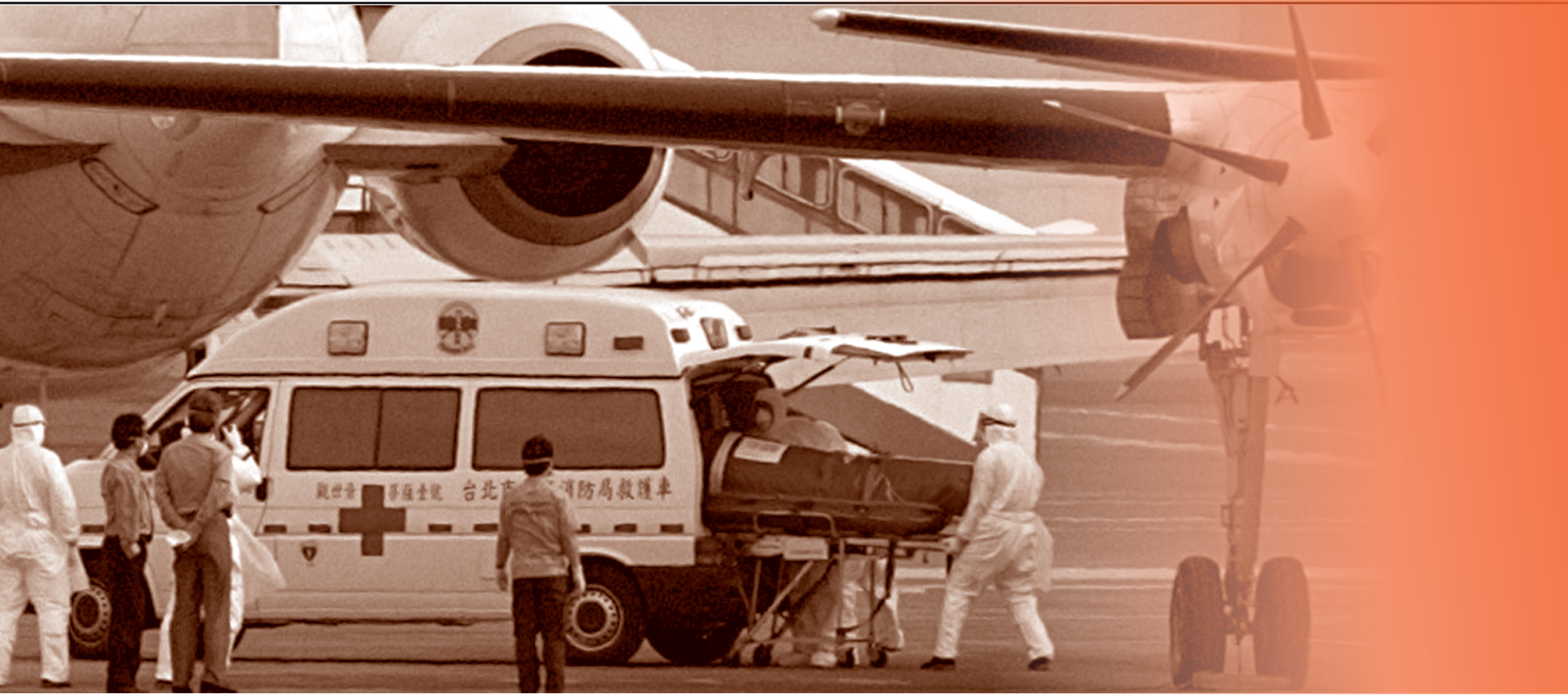
8 The car's too small – we'll need a __________ .

Discussion

6 Discuss the questions with a partner.

1 Describe a ground movement accident you've had or know of.
2 What do you think are the major causes of ground movement accidents?
3 What can be done to reduce taxiway accidents?
4 What technology exists to help reduce the number of accidents on the ground?
5 Do you think the incidence of ground movement accidents will increase or decrease in the future? Why?

PILOT INCAPACITATION



Describe the picture

1a Describe what you see in the picture. Use the words in the box.

patient ambulance stretcher suit mask nurse

1.35 Now listen to the sample answer.

1b Answer the questions.

1 What type of aircraft is it?
2 What type of flight do you think it is? Why?
3 What sort of airfield do they land at?
4 Why do you think this situation occurred?
5 What do you think will happen next?

Plain English – Listening for gist

2a 1.36 Listen to an expert talking about pilot incapacitation. Tick (✓) the things they mention.

☐ a particular incident of incapacitation
☐ causes of incapacitation
☐ medical services
☐ advice for pilots
☐ incident statistics
☐ who is affected

Plain English – Listening for detail

2b 1.36 Listen again and underline the correct information.

1 The expert says incapacitation is *common / very common / not common at all.*
2 *Pilots / Passengers / Both pilots and passengers* should be able to recognize incapacitation.
3 Pilots must never eat *in remote areas / at the same time / the same food.*
4 The expert says *chest pain, weakness and palpitation / chest pain, indigestion and weakness / sweating, yawning and shortness of breath* should be taken very seriously.

Radiotelephony – Listening

3a 1.37 Listen to the dialogue. Decide if the statements are true or false. Write *T* or *F*.

1 The pilot is unconscious.
2 The man flying the aircraft is a pilot.
3 There are four people on board.
4 The man flying doesn't feel well.
5 The controller suggests ventilating the cabin.
6 The man flying knows how to operate the autopilot.

Radiotelephony - Plain English

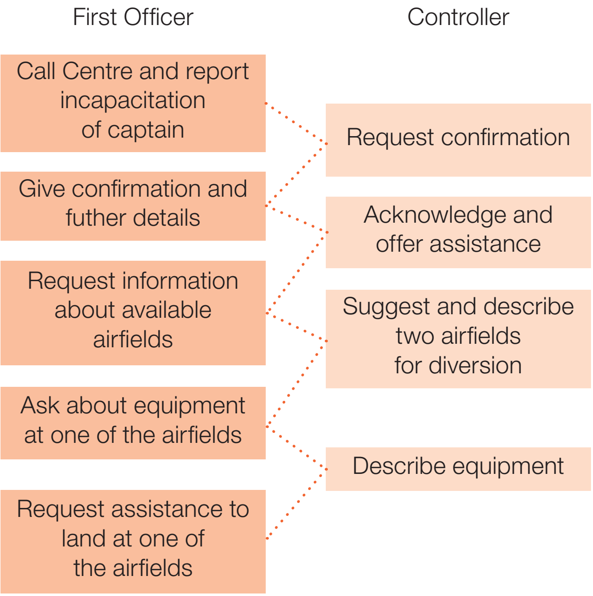
3b 1.37 Match the beginnings (1–5) with the endings (a–e) to make sentences from the dialogue.

1 The pilot's passed out and
2 I'm getting help now from someone who's
3 The oily fumes are
4 You could have
5 Can you get

a fresh air into the cabin?
b carbon monoxide poisoning.
c I'm on my own up here.
d familiar with your aircraft.
e making me feel pretty nauseous.

Clarification

4a Work with a partner. Student A is the first officer of a jet aircraft, call sign Quickjet 988, maintaining FL180. Student B is an en-route controller at Scherberg centre. Read the dialogue outline and decide what to say.


First Officer
Controller
Call Centre and report incapacitation of captain
Request confirmation
Give confirmation and futher details
Acknowledge and offer assistance
Request information about available airfields
Suggest and describe two airfields for diversion
Ask about equipment at one of the airfields
Describe equipment
Request assistance to land at one of the airfields

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

incapacitated (adj) cramp (n) vomit (v) tighten (v)
short (adj) poisoning (n) pass out (v) nauseous (adj)

1 If you do this, your food comes up from your stomach and out through your mouth
2 Feeling as if you want to vomit
3 Severe pain in a muscle that becomes very tight
4 Unable to do ordinary things because you are ill
5 To suddenly become unconscious
6 Used for saying that you do not have enough of something
7 If a muscle does this, it becomes hard and stiff
8 An occasion when someone is affected by poison

5b Complete a B727 captain's report with the words from 5a.

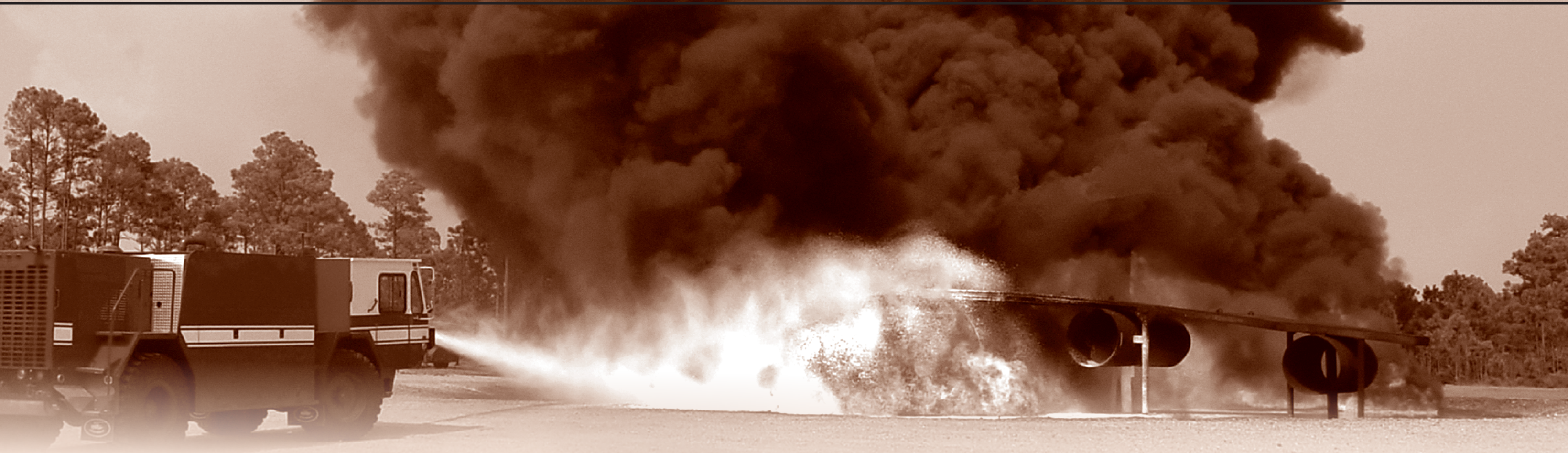
Climbing through approx FL250, while beginning a crew meal, I began to feel a (1) _______ of the chest. At first I loosened my tie. The discomfort was not significant enough to mention to my FO. The next thing I remember was asking what happened. The FO said that I (2) _______ for about 40 seconds, and that we were diverting to Miami. I had severe stomach (3) _______ and felt (4) _______, though I didn't actually (5) _______. I was also (6) _______ of breath. I acknowledged the FO was in charge of the ACFT; the FCOM said 'don't allow the (7) _______ crew member to operate FLT CTLS'. The FO did an overwt lndg in Miami and taxied to gate. I walked off the ACFT. I thought it was food (8) _______, but the doctors determined that I probably experienced mild anaphylaxis.

Discussion

6 Discuss the questions with a partner.

1 Describe a pilot incapacitation event you know of.
2 What does the industry do to minimize the risk of pilot incapacitation?
3 What do you think are the major causes of pilot incapacitation?
4 What are the procedures for dealing with pilot incapacitation?
5 Describe any first aid training you have had.

PROGRESS TEST 2



Describe the picture

1a Describe what you can see in the picture.

1b Answer the questions.

1 Where would this exercise take place?
2 Have you ever witnessed a similar exercise? Describe it.
3 How long do you think the activity will last?
4 Describe the position of the fire truck.
5 How often do you think this sort of training should happen?

1.38 Now listen to the sample answer.

Plain English – Listening for gist

2a 1.39 Listen to part of a presentation on five reported birdstrikes. Match the summaries to the incidents a–e.

1 The runway was closed for an hour after an aircraft hit a large flock of birds. ____________
2 A goose caused the failure of two engines. ________
3 The aircraft hit a gull causing oil problems in the engine. ____________
4 The aircraft hit a flock of geese causing severe damage to the engines and airframe. ________
5 After ingesting a bird the aircraft landed using single engine landing procedure. ____________

Plain English – Listening for detail

2b 1.39 Listen again and answer the questions.

1 Which incident cost the most money? ________
2 Which incidents were caused by gulls? ________
3 Which incidents were caused by geese? ________
4 Which incidents were caused by blackbirds?
____
5 Which incidents mention flame and / or smoke?
____
6 Which incidents mention damage to fan blades?
____

Radiotelephony – Listening

3a 1.40–1.42 Listen to three dialogues between pilots and local air-traffic controllers. Complete the sentences with a call sign.

Webair 537 Postline 912 N653D Transair 6326

1 ________ reports a runway incursion.
2 ________ would like to disembark passengers.
3 ________ aborts take off.
4 ________ collides with an airport lighting fixture.
5 ________ requires backtrack.
6 ________ will be pushed back.
7 ________ is unable to follow taxi instructions.
8 ________ no longer has engines running.

Radiotelephony – Plain English

3b 1.40–1.42 Rearrange the words to make phrases from the dialogue.

1 on / to / Echo / direction / unable / due / proceed / opposite / aircraft / in ______________________

2 us / we / a / Postline / nose / nose / have / Fokker / 50 / with / on / to / Echo ______________________

3 a / ahead / taildragger / there's / about / 1,000 ft / right / left / crossing / to ______________________

4 lamp post / the / hit / here / we / with / left / wing / our ______________________

5 disembark / we / advise / passengers / company / here / our ______________________

Clarification

4a Work with a partner. Student A is the pilot of TC-WIJ taxiing for departure. Student B is a Tower ATCO. Read the dialogue outline and decide what to say.

TC-WIJ	Tower
Say problem and ask to return to stand 6	
	Ask for clarification of the problem
Explain strange sound from hold and intermittent cargo door indicator	
	Give instructions to taxi to stand 3
Read back instructions to taxi to stand 6	
	Say stand 6 is unavailable. Repeat instructions to taxi to stand 3
Give correct readback. State need for maintenance at stand 3	
	Say you'll relay the request

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

piece (n) panel (n) track (v) sign (n) load (v)
foam (n) nauseous (adj) follow (v)

1 To follow the course of a moving object using special equipment

2 An individual object or part of something

3 To put cargo into or onto something to be transported

4 Feeling as if you want to vomit

5 To travel behind or along something or to do as instructed

6 A flat part of the skin of the aircraft that can be removed

7 A thick substance containing a lot of bubbles used for stopping fire

8 An object that uses words or pictures to give information

5b Complete the sentences with the words from 5a.

1 The engineer needed to remove the __________ to work on the electrics.

2 ATC were able to __________ the movement of the aircraft using radar.

3 The severe turbulence left him feeling __________.

4 The ground staff were unable to __________ all the cargo in time.

5 Its better to use __________ rather than water on an electrical fire.

6 We __________ the car to the correct stand.

7 The equipment is made of five different __________.

8 The __________ clearly showed 'no entry'.

Discussion

6 Discuss the questions with a partner.

1 Describe a birdstrike incident you have heard of.

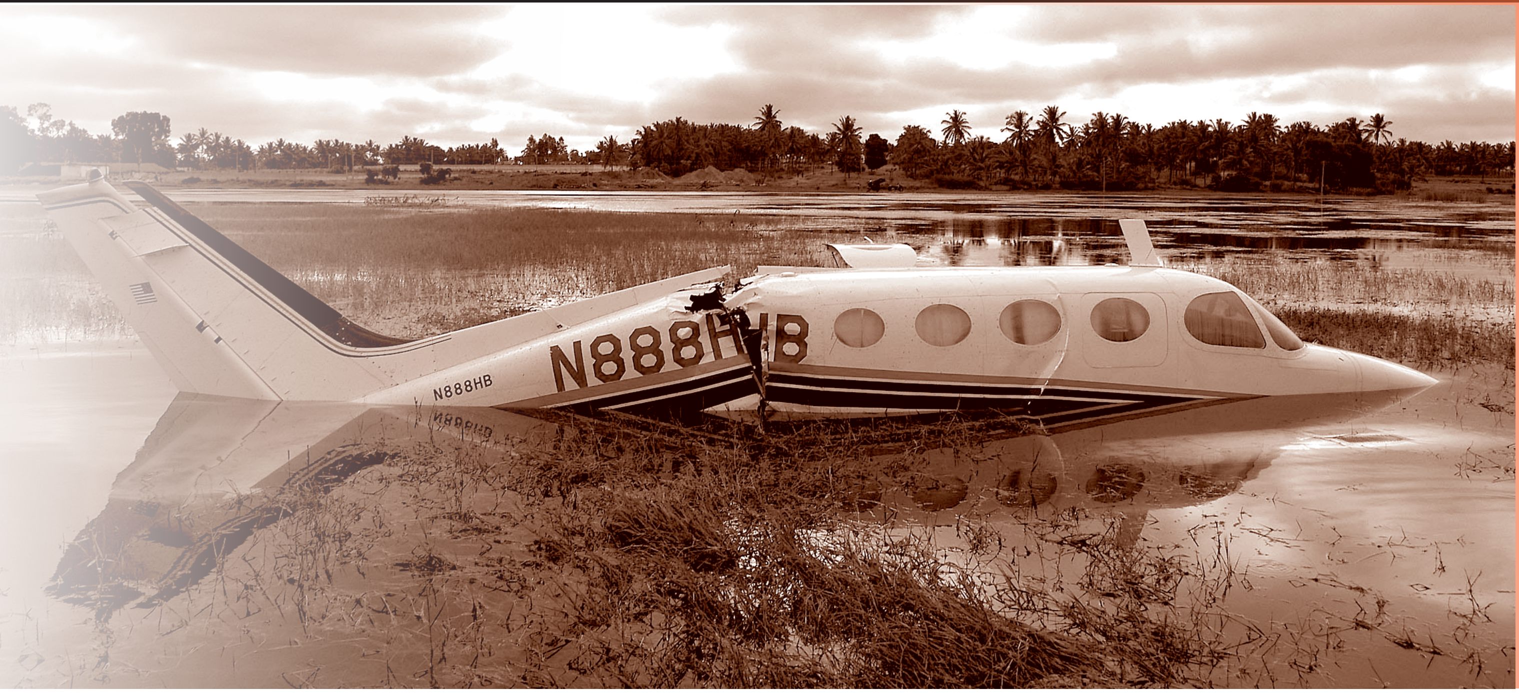
2 What are the main differences between cargo and passenger flights?

3 What do you think are the main causes of aircraft fire?

4 What can be done to reduce taxiway incidents?

5 What age do you think pilots and controllers should retire? Why?

DITCHINGS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

wreck fuselage register submerged split broken

1.43 Now listen to the sample answer.

1b Answer the questions.

1 Where is the plane?
2 What do you think happened?
3 How long after the landing do you think the photo was taken? Why?
4 Where was the photographer in relation to the aircraft?
5 What do you think will happen next?

Plain English – Listening for gist

2a **1.44** Listen to an instructor talking to cadets about ditching at sea. Which of these topics does the instructor not refer to?

☐ coastal areas
☐ rivers
☐ lakes
☐ search and rescue
☐ flight plans
☐ fuel problems
☐ fishing
☐ trees

Plain English – Listening for detail

2b **1.44** Listen again and complete the table.

Flotation Devices
1 ______________________
2 ______________________
Actions
1 ______________________
2 ______________________
Causes
1 ______________________
2 ______________________
3 ______________________
4 ______________________
5 ______________________

Radiotelephony – Listening

3a 1.45 Listen to the dialogue between PF, PNF and ATC. Answer the questions.

1 What is the problem?
2 What is the direction and distance to QDM Mombasa?
3 What is Oxair 371's first request?
4 What did ATC not hear?
5 Where will the pilot try and land?
6 What is Oxair's second request?

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 brief / get / cabin crew / the passengers / to / the

____

2 are not / to reach / able / I think / the land / we

____

3 both / engines / may / we / lose ______________

4 coastal / facilities / we / limited / rescue / have / very ______________________________

5 is / and / has / away / in sight / five miles / you / the helicopter ___________________________

Clarification

4a Work with a partner. Student A is a pilot of a Beechcraft Bonanza, PK-RTA, en route between two Pacific islands. Student B is an ATCO at Shalaba Centre. Read the dialogue outline and decide what to say.

PK-RTA	ATCO
Declare emergency. Describe engine problems. Request nearest airfield	Suggest alternate airfield on Lungga island, 19 miles south
Say rapid power loss. Only minutes remaining	Say will alert coastguard. Request intentions
Say will turn right and will prepare to ditch	Acknowledge. Request POB
Say 4 POB – all have flotation devices	Acknowledge. Say coastguard helicopter has been scrambled

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

flotation (n) inflatable (adj) boat (n) ship (n)
procedure (n) lake (n) coast (n) impact (v)

1 A small vessel people use for travelling on water
2 The correct way of doing something
3 An object which is filled with air before using it
4 A large area of water that is surrounded by land
5 Land next to the sea
6 To hit another object
7 The ability to float
8 A large vessel people use for travelling on water

5b Complete the news report with the words from 5a.

Observers five miles inland saw a light aircraft flying low overhead, clearly in trouble. It was too mountainous to attempt a landing and the (1) __________ was crowded with (2) __________ and swimmers. The open sea was the only option. The pilot flew over the (3) __________ and carried out ditching (4) __________ before (5) __________ the water. He managed to climb out of the cockpit and hang on to a (6) __________ device and was rescued by an (7) __________ dinghy sent from a cruise (8) __________ which was returning from a round-the-world voyage.

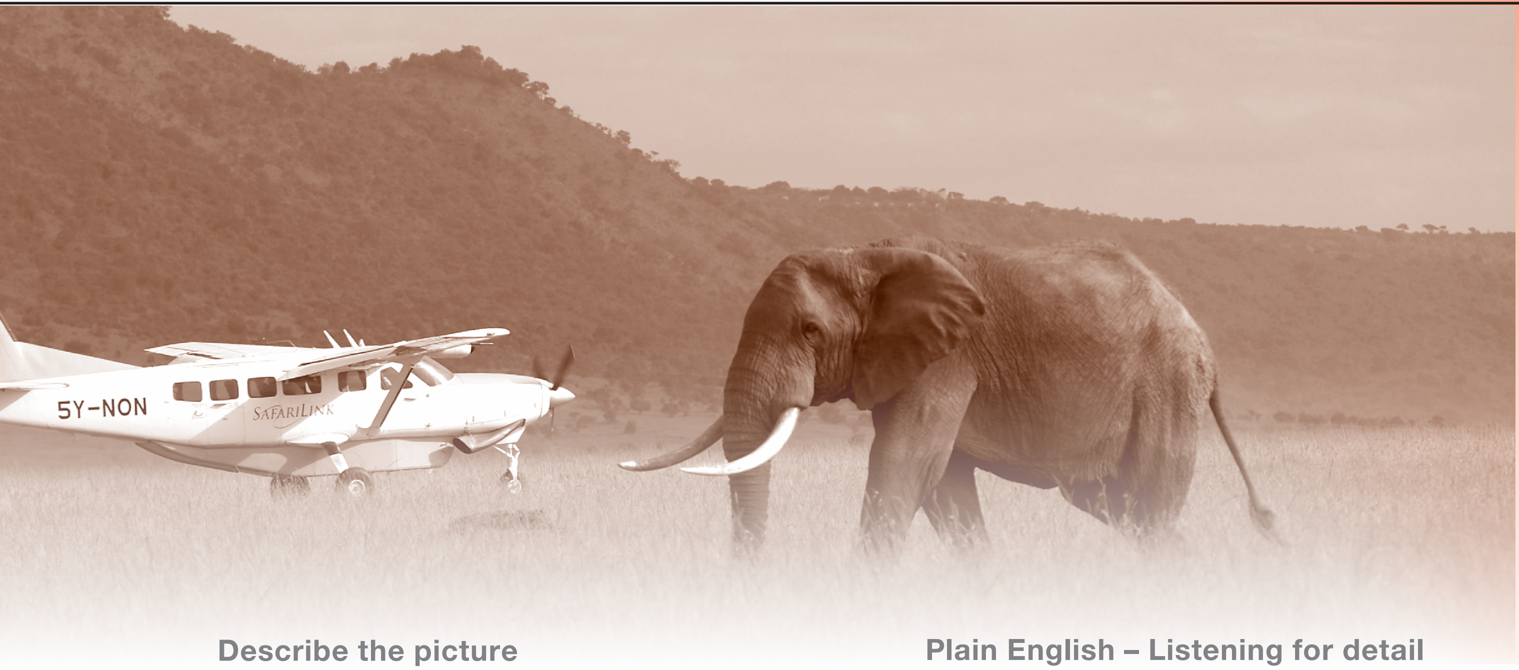
Discussion

6 Discuss the questions with a partner.

1 Describe a ditching you've had or know of.
2 What do you think are the major causes of ditchings?
3 What can be done to minimize the risk after ditching?
4 What technology exists to help pilots of aircraft who have ditched?
5 Do you think the incidence of ditchings will increase or decrease in the future? Why?

Unit 12

ANIMALS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

plain grass airstrip remote mammal ridge wild

1.46 Now listen to the sample answer.

1b Answer the questions.

1 Why do you think the aircraft has landed here?
2 What danger does the elephant pose to the aircraft, its crew and passengers?
3 What other wildlife could be present here?
4 Where was the photographer in relation to the elephant and the aircraft?
5 Do you think there are any airfield facilities here? Why? / Why not?

Plain English – Listening for gist

2a 1.47 Listen to a pilot describing a flight to a colleague. Choose the best summary.

a A live animal broke loose in the cargo hold of an aircraft in flight.
b Live animals were incorrectly loaded with dangerous goods.
c Live animals caused damage to aircraft systems in flight.

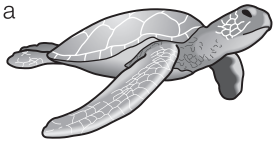
Plain English – Listening for detail

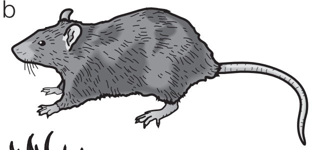
2b 1.47 Listen again and answer the questions.

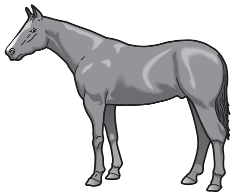
1 What hazardous material was loaded on the aircraft?
2 How long was the delay before departure?
3 What animal was loaded on the aircraft?
4 What was the weight of the aircraft on landing in Brisbane?
5 Why does the pilot think the situation happened?
6 What does the pilot think flight crew should have in future?

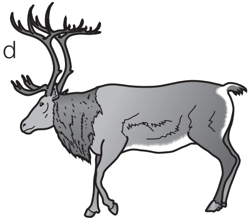
Radiotelephony – Listening

3a 1.48–1.50 Listen to the dialogues. Match each of the animals below (a–d) with one of the situations (1–2).

a


b


c


d


1 Arriving traffic __________
2 Departing traffic __________

Radiotelephony – Plain English

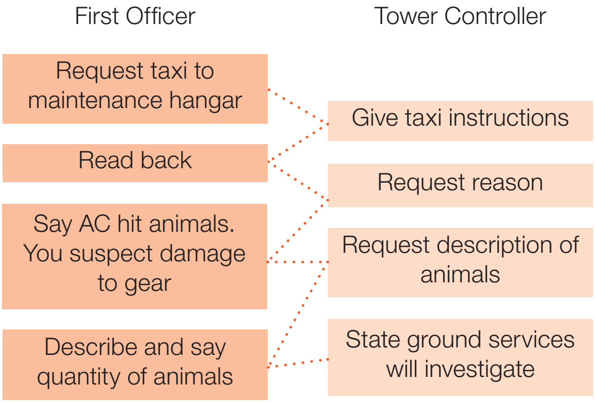
3b Match the beginnings (1–5) with endings (a–e) to make sentences from the dialogues.

1 There's wildlife running around
2 They're heading over towards
3 They look like rats, but
4 We'll send someone out
5 We'll have a vehicle

a there to get it off.
b come and remove it.
c in front of our aircraft over here.
d they might be something else.
e the grass on the right-hand side.

Clarification

4a Work with a partner. Student A is a first officer on a turbo prop aircraft, call sign Aviair 352, which has aborted take off on RWY 25L. Student B is a tower controller at Nabang International Airport. Read the dialogue outline and decide what to say.



First Officer	Tower Controller
Request taxi to maintenance hangar	
	Give taxi instructions
Read back	
	Request reason
Say AC hit animals. You suspect damage to gear	
	Request description of animals
Describe and say quantity of animals	
	State ground services will investigate

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

live (adj) hazard (n) wildlife (n) run around (v)
secure (v) dead (adj) roam (v) rodent (n)

1 Something that could be dangerous or could cause damage or accidents
2 No longer alive
3 To make an area or building safe
4 Animals that live in natural conditions
5 Moving to many different parts or areas
6 To move or travel with no particular purpose
7 A type of small animal with long, sharp front teeth, for example a mouse
8 Living and not dead

5b Complete the comments from a pilot's Internet forum with the words from 5a.

http://www.pilotsinternetforum.com

(Block1973) I've seen loads of (1) __________ digging up the grass at Royston. It's a real (2) __________ . I once had to get out and remove a (3) __________ one from the runway.

(Airhead2002) I've seen coyotes (4) __________ the field at night looking for food at Royston. I guess they're chasing those rats!

(BaronGreenback) It doesn't sound like Royston's very well (5)__________ . You shouldn't have to share it with the (6) __________ .

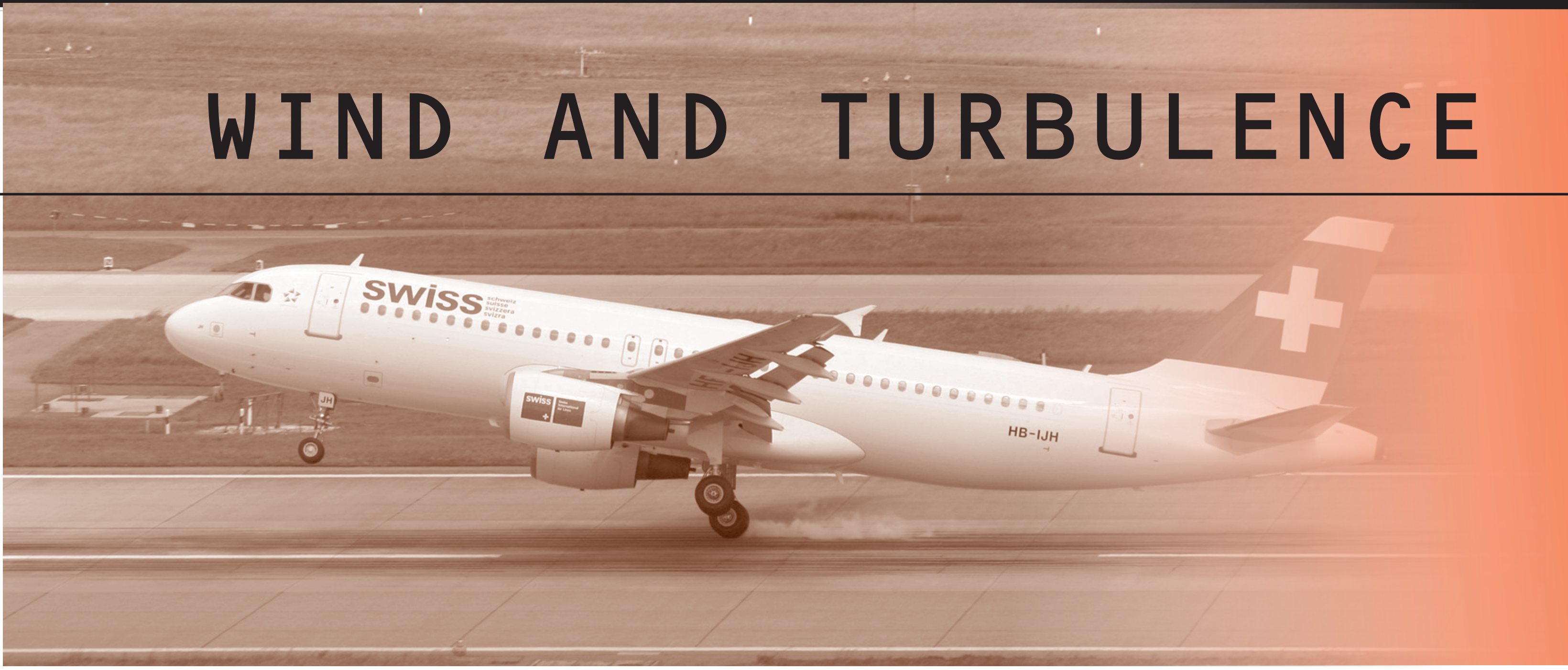
(BigDave) I once had a (7) __________ lizard in the aircraft with me. When we started up, he woke up and started (8) __________ the cabin!

Discussion

6 Discuss the questions with a partner.

1 What animals pose a threat to operations where you work or fly?
2 Why are wild animals a danger to aircraft?
3 What can be done to reduce the risk posed by animals?
4 What types of live animals are carried in aircraft?
5 What considerations must airlines make when carrying live animals?

WIND AND TURBULENCE



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

unstable low wheel smoke nose grass

2.01 Now listen to the sample answer.

1b Answer the questions.

1 What is happening in the picture?
2 What are the markings on the plane?
3 What is the flap configuration?
4 Where was the photograph taken from?
5 What do you think will happen next?

Plain English – Listening for gist

2a **2.02** Listen to a session for controllers on separation and wake turbulence. According to the recording, who is responsible for anticipating wake turbulence?

Plain English – Listening for detail

2b **2.02** Listen again and fill in the spaces.

ATCs may separate departing aircraft by visual means after considering aircraft performance, wake turbulence, (1) ___________ , routes of flight and known (2) ___________ . The ATC must have both aircraft (3) ___________ and must be in (4) ___________ with at least one of them. The flight crew of the (5) ___________ aircraft must be able to see the (6) ___________ aircraft. In (7) ___________ airspace which has ATC radar coverage, the controller must inform the pilot of (8) ___________ aircraft and VFR traffic.

Radiotelephony – Listening

3a **2.03** Listen to the dialogue. Read the summary and correct the three mistakes.

GH1559 encountered heavy rain and thunderstorms. ATC gave them two options; go north or turn west and go south of the weather. The pilot wanted to go north because the weather was moving south. ATC gave all traffic alerts about windshear, microburst activity and severe snow. ATC informed GH1559 that a thunderstorm was directly over the airport and gave them two options; to direct them somewhere to hold or to issue delaying vectors. GH1559 requested a straight in approach due to minimum fuel.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 south / appears / weather / moving / be / to / the

____

2 what / you / do / want? / roger, / heading

____

3 thunderstorm / right / right / we / a / over / airport / the / have / now ______________________________

4 we / be able / runway 19 / on / you / to bring / in / may ______________________________

5 you / keep / us / informed / let / us / for / and / works / what / know ______________________________

Clarification

4a Work with a partner. Student A is pilot. Student B is steward. Read the dialogue outline and decide what to say.

Pilot	Steward
Get everyone seated, expecting severe turbulence	Ask when
Say five minutes	Say passenger locked in toilet
Ask if passenger has blocked the toilet	Explain passenger has locked toilet and is stuck
They must return to their seat in two minutes or stay in toilet	Acknowledge

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

unconventional (adj) separation (n) anticipate (v) bumpy (adj) displace (v) unstable (adj) touch (v) trailing (adj)

1 To make physical contact
2 The condition of being apart
3 To think that something will probably happen
4 Moving up or down in an uncomfortable way
5 To move something out of position
6 Different from what is considered to be normal
7 Something which comes after something else
8 Not in a fixed place or state

5b Complete the pilot's report on the effect of wake turbulence with the words from 5a.

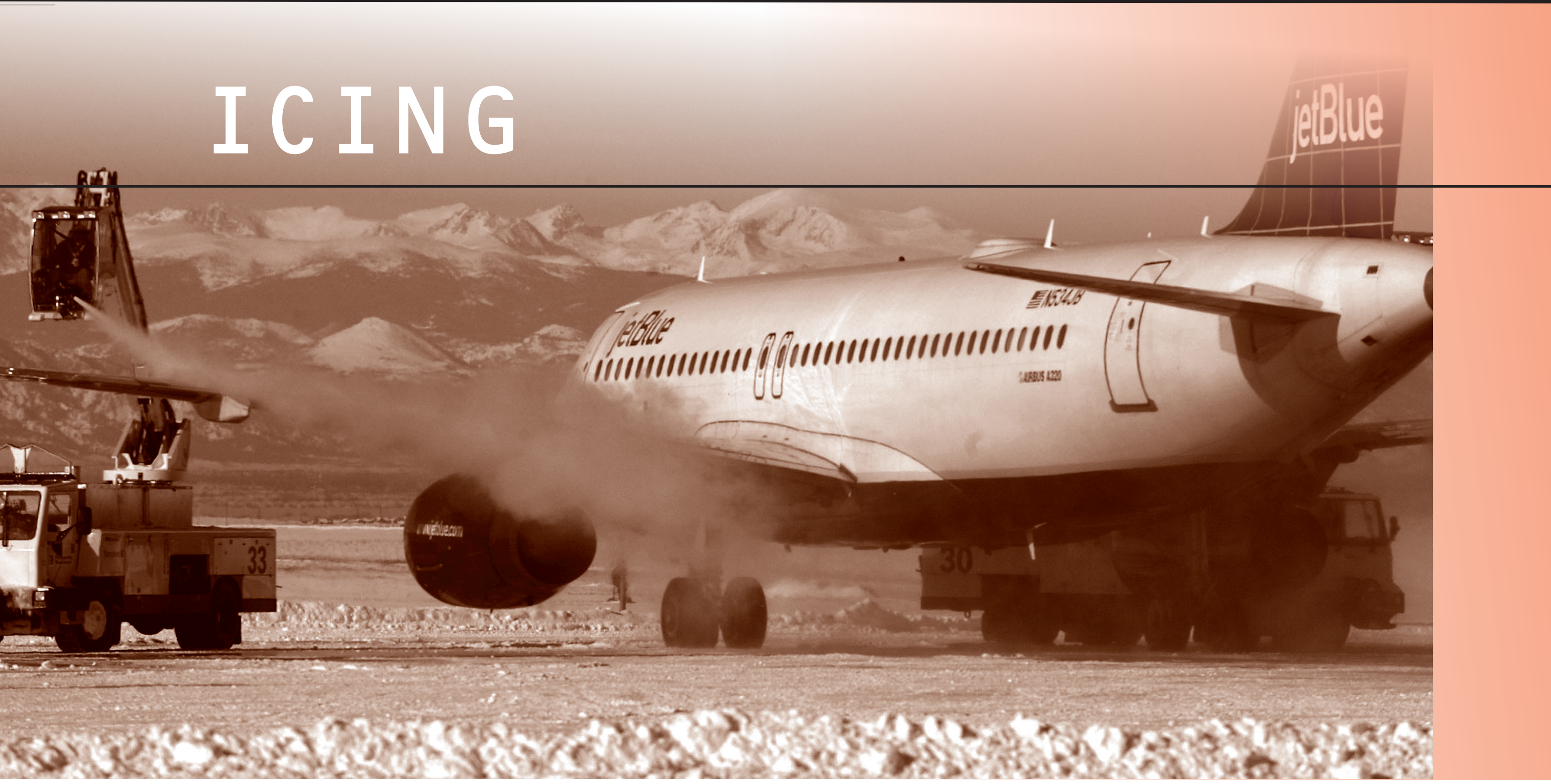
I was below the heavy but didn't have adequate (1) __________ . It caused quite a (2) __________ ride for my passengers. Fortunately I (3) __________ the effects and was able to keep control. We were probably (4) __________ more than 30 degrees in a roll but still (5) __________ the Jumbo. We ended up having an (6) __________ approach which led to an (7) __________ landing one wheel at a time. I thought the wingtip was going to (8) __________ the runway, but in the end we were fine and were able to taxi safely to the apron.

Discussion

6 Discuss the questions with a partner.

1 How do meteorological conditions affect wake turbulence?
2 How can a pilot counter the effects of crosswinds?
3 How can controllers assist pilots in dealing with the weather on landing?
4 How has technology made it easier to cope with weather on the ground?
5 How will technology help this in the future?

ICING



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

departure mountainous spray fluid melt de-icing facility

2.04 Now listen to the sample answer.

1b Answer the questions.

1 Why is the aircraft being de-iced?
2 Where do you think the picture was taken?
3 What difficulties might the crew face when manoeuvring? Why?
4 How long will the procedure take?
5 Where on the airfield is this activity taking place?

Plain English – Listening for gist

2a 2.05 Listen to a type-rating instructor talking about an icing event. Put the events in the correct order.

a The pilot contacted ATC.
b The pilot stated he would fly until conditions improved.
c The aircraft rapidly began losing airspeed.
d Ice began building up on the wing.
e The pilot made an emergency descent.

Plain English – Listening for detail

2b 2.05 Listen again and decide what these numbers mean.

1 8-200
2 -8
3 1,200
4 15
5 1,200
6 4,000
7 11,000

Radiotelephony – Listening

3a 2.06 Listen to the dialogue. Put the events in the correct order.

a 28D gets control of the aircraft at 6,500 ft. ______
b 28D says they would like to continue the approach. ______
c A Dornier, call sign 28 D, makes an uncontrolled descent. ______
d The ATCO thinks the ice is causing problems for communication. ______
e The ATCO suggests 28D's airspeed instrument is malfunctioning. ______
f United 883 is issued approach clearance. ______
g The ATCO warns 28D about the possible icing conditions ahead. ______
h United 883 reports icing conditions to the ATCO. ______

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 control / getting / I'm / now / just / some

____

2 your / frozen / up / maybe / is / pitot tube

____

3 lost / we / all airspeed / with / warning / no

____

4 might / pick / icing / some / you / more / up

____

5 on / have / ice / you / might / antenna / your

____

Clarification

4a Work with a partner. Student A is a captain of a private jet, call sign Sierra 464, cleared to altitude 3,000 ft passing FL60. Student B is an ATCO at Winjao Approach Control. Read the dialogue outline and decide what to say.

Captain	ATCO
Call Approach and report climb	Acknowledge and request reason for climb
Approaching stall due icing. Difficult handling	Acknowledge
Say altitude. Aircraft under control	Request intentions
Problem with de-icing equipment. Request VMC for landing	Suggest alternate and say weather

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Discussion

6 Discuss the questions with a partner.

1 Is icing an issue where you work or fly?
Why? / Why not?

2 What meteorological conditions lead to icing?

3 Why is ice accretion a problem?

4 What equipment do aircraft have to manage icing?

5 What do pilots typically do if they experience severe icing in flight?

Vocabulary Check

5a Match the words in the box with the definitions.

pick up (v) build up (v) boot (n) freeze up (v)
melt (v) vibrate (v) accumulate (v) heat (n)

1 To get more and more of something over a period of time

2 To increase

3 To collect a quantity of something

4 The quality of being hot

5 A tube bonded to a surface, e.g. wing edge. When pressurized with fluid, it breaks up ice.

6 To become very cold and stop working

7 To change a solid substance into a liquid

8 To shake very quickly with small movements

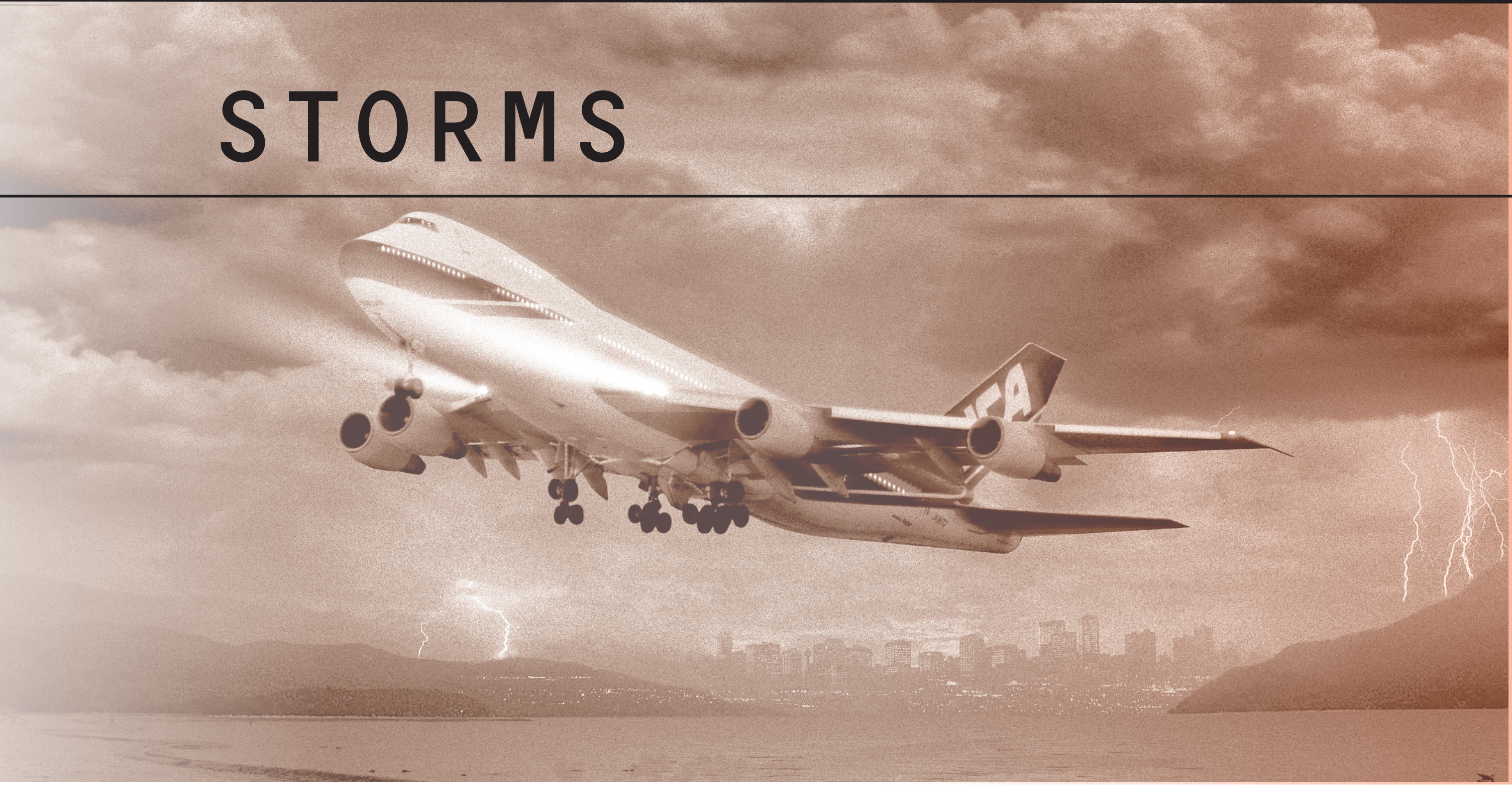
5b Complete the General Aviation Owner's Club guidance briefing on VIP visits with the words from 5a.

GAOC *safety guidance*

Ice in flight is bad news. Ice (1) _________ on every exposed frontal surface of the airplane. It (2) _________ where no (3) _________ can (4) _________ it, and where (5) _________ can't break it. This is not just the wings, propeller, and windshield, but also on the antennas, vents, intakes, and cowlings. It can cause pitot tubes to (6) _________ , and antennas to (7) _________ so severely that they break. In moderate to severe conditions, a light aircraft can (8) _________ so much ice that continued flight is impossible.

Unit 15

STORMS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

dark convective storm fork lightning water distance

2.07 Now listen to the sample answer.

1b Answer the questions.

1 Where do you think the picture was taken?
2 What time of year is it?
3 What phase of flight do you think the aircraft is in?
4 What difficulties might the flight crew be experiencing?
5 What will happen next?

Plain English – Listening for gist

2a 2.08 Listen to a radio interview with an experienced pilot talking about flying in stormy weather. Tick (✓) the things she mentions.

☐ the experience of flying through a storm
☐ on-board weather detection equipment
☐ turbulence ☐ convective storms
☐ flight diversion ☐ damage to aircraft

Plain English – Listening for detail

2b 2.08 Listen again and answer the questions.

1 When is flying through storms especially frightening?
2 How does she fly through a line of storms?
3 When is the radar particularly useful?
4 What can't pilots prepare for? Why?
5 How far did she once divert? Why?

Radiotelephony – Listening

3a 2.09–2.12 Listen to the four dialogues. Match the correct information with each call sign.

Call sign	Problem encountered	Remarks
1 Citylink 682	a Windshear	A Execute a missed approach
2 CD413	b Lightning strike	B Requests diversion for maintenance inspection
3 Buzzard 291	c Severe turbulence	C Had no prior warning
4 Ocean 452	d Cumulonimbus	D Unable to comply with ATC instructions

Radiotelephony – Plain English

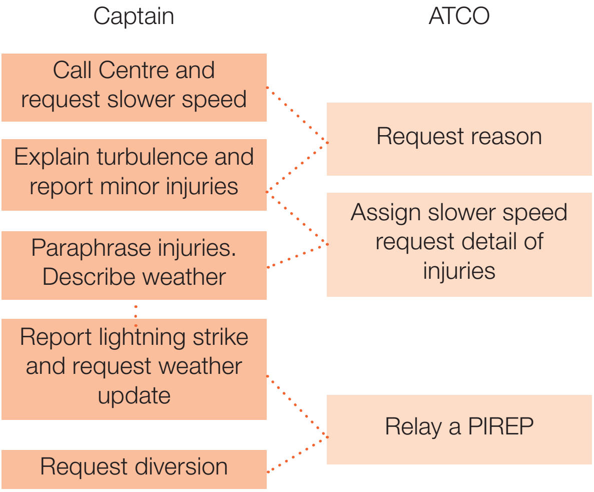
3b Match the beginings (1–5) with endings (a–e) to make sentences from the dialogue.

1 We think we've had a
2 According to MET we didn't
3 Request higher or a new heading
4 There feels like a lot of
5 We'd like to divert to Southampton to

a expect any thunderstorm activity.
b get the airframe checked please.
c for immediate weather avoidance.
d lightning strike on the port side.
e Charlie Bravo activity around here.

Clarification

4a Work with a partner. Student A is the captain of a medium-sized jet, call sign Norte 243, maintaining FL270. Student B is an en-route ATCO at São Luis centre. Read the dialogue outline and decide what to say.


Captain
ATCO
Call Centre and request slower speed
Request reason
Explain turbulence and report minor injuries
Assign slower speed request detail of injuries
Paraphrase injuries. Describe weather
Report lightning strike and request weather update
Relay a PIREP
Request diversion

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

updraft (n) jolt (n) strike (n) cell (n) through (adv)
around (adv) into (adv) circumnavigate (v)

1 From one side of something to the other side of it
2 A sudden violent movement
3 The central part of a thunder cloud
4 An impact or collision
5 Moving in a circular way to get to the other side
6 To fly completely around something
7 Entering a place or thing
8 A rising current of air

5b Complete the website information with the words from 5a.

http://www.pilotsandstorms.com

While most pilots' instinct is to (1) __________ a storm (2) __________ , the NOAA's* *Hurricane Hunters* fly (3) __________ them. When hurricanes threaten the USA, Lockheed WP-3Ds fly completely (4) __________ the hurricane up to six times to collect data to pass back to meteorologists on the ground. As they head for the eye of the storm, the pilots fight increasingly strong (5) __________ from (6) __________ and downdrafts, intense rain and lightning (7) __________ . Meanwhile, the NOAA's Gulfstream jet is flying over hundreds of miles of ocean (8) __________ the storm, gathering information which helps predict where a storm is heading.

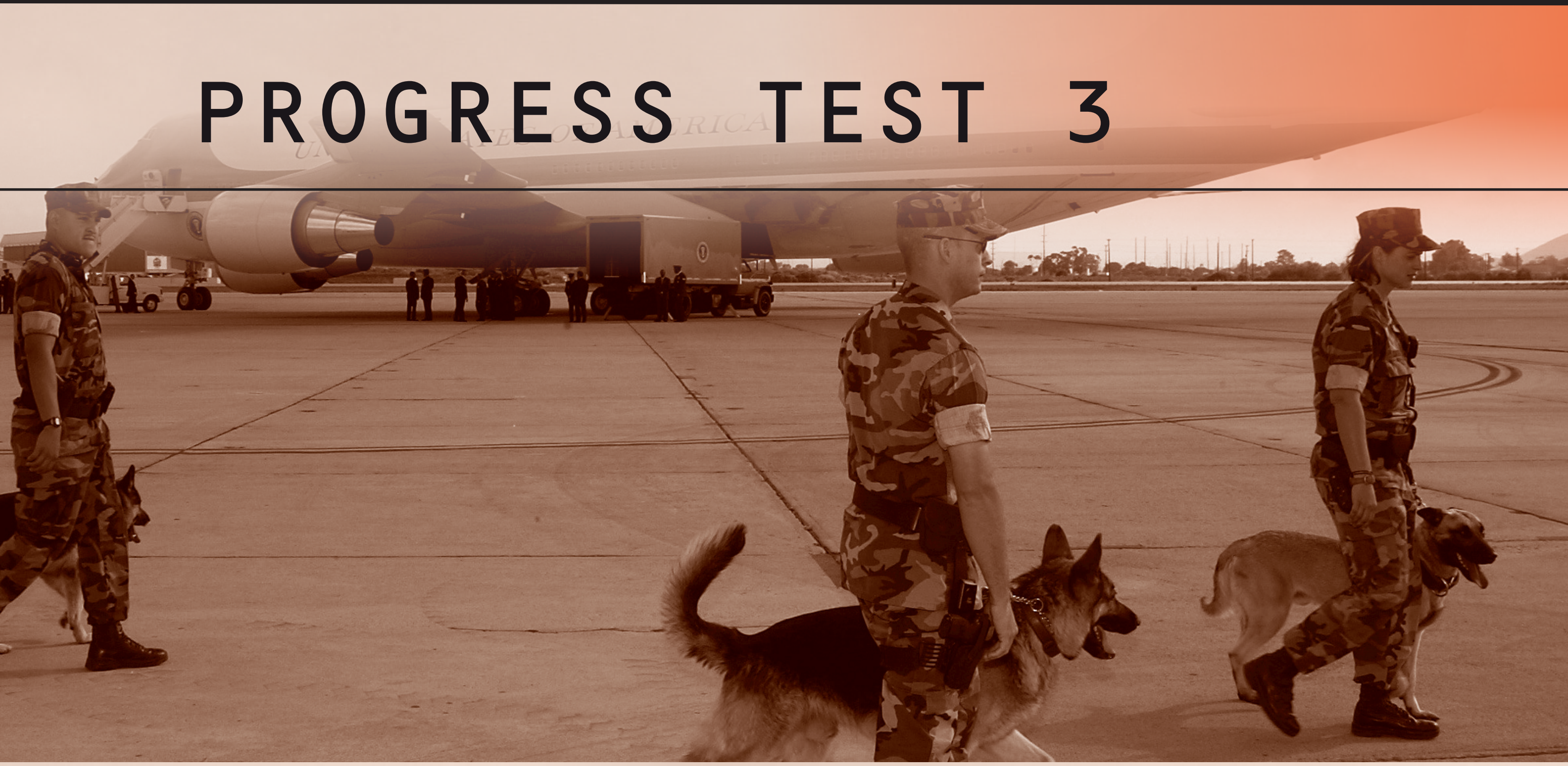
*National Oceanic and Atmospheric Administration

Discussion

6 Discuss the questions with a partner.

1 What conditions can pilots encounter when flying in stormy weather?
2 What procedures are in place for low visibility operations where you work?
3 How does stormy weather affect general and commercial aviation differently?
4 How is weather information communicated to ATCOs and flight crews?
5 How accurate are weather predictions these days?

PROGRESS TEST 3



Describe the picture

1a Describe what you can see in the picture.

1b Answer the questions.

1 What kind of person is the flight for?
2 Where do you think the photo was taken?
3 Where are the animals in relation to the aircraft?
4 Do you think the aircraft is inbound or outbound? Why?
5 What do you think will happen next?

2.13 Now listen to the sample answer.

Plain English – Listening for gist

2a 2.14 Listen to an instructor giving a presentation to a group of ab-initio air-traffic controllers. Choose the best title for the talk.

a The top five weather conditions which affect aviation.
b Comparison of the effects of summer and winter weather patterns.
c How weather affects flight scheduling.

Plain English – Listening for detail

2b 2.14 Listen again and make notes under the headings

Rules and restrictions	Passenger injuries
Summer weather	Departures

Radiotelephony – Listening

3a 2.15 Listen to the dialogue. Put the events in the correct order.

a The pilot requests terrain information.
b The pilot declares an emergency due to engine failure.
c The local ATCO suggests a right turn to be closer to rescue boats.
d The pilot makes a distress call due to loss of power.
e The local ATCO advises terrain with no trees to the southeast.
f The pilot warns of a possible ditching.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 been / emergency / alerted / have / services / the

____

2 landing? / what / the / is / suitable / closest / for / terrain / forced / a ______________________

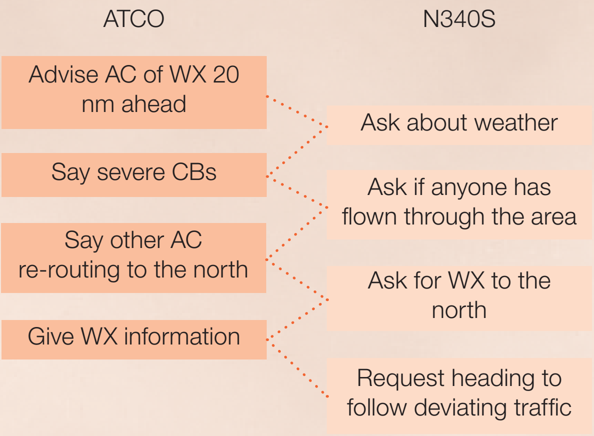
3 think / I / we / enough / have / don't / make / height / to / over / it / water / the ___________

4 turn / take / vessels / closer / rescue / to / a / you / will / right______________________________

5 activity / there / advised / the / is / are / no / on / we / lake ______________________________

Clarification

4a Work with a partner. Student A is pilot of N340S, a light aircraft, maintaining 5,000 ft, VFR. Student B is an ATCO. Read the dialogue outline and decide what to say.


ATCO
N340S
Advise AC of WX 20 nm ahead
Ask about weather
Say severe CBs
Ask if anyone has flown through the area
Say other AC re-routing to the north
Ask for WX to the north
Give WX information
Request heading to follow deviating traffic

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

inflatable (n) impact (v) hazard (n) separation (n)
unstable (adj) trailing (adj) vibrate (v)
circumnavigate (v)

1 To strike against another thing
2 The condition of being apart
3 Not in a fixed place or state
4 To shake very quickly with small movements
5 An object which is filled with air before using it
6 Something that could be dangerous or could cause damage or accidents
7 Coming after something else
8 To move in a circular way so that you get to the other side of something

5b Complete the sentences with the words from 5a.

1 The __________ life raft was deployed soon after ditching.

2 The support was __________ and so it collapsed.

3 The Cessna __________ the ground so heavily that the gear bent.

4 The controller asked the __________ Airbus if he could see any damage to the Boeing taxiing in front.

5 In 1924 the first aircraft __________ the world.

6 Inadequate __________ led to a near miss.

7 Flocks of large birds can be a major __________.

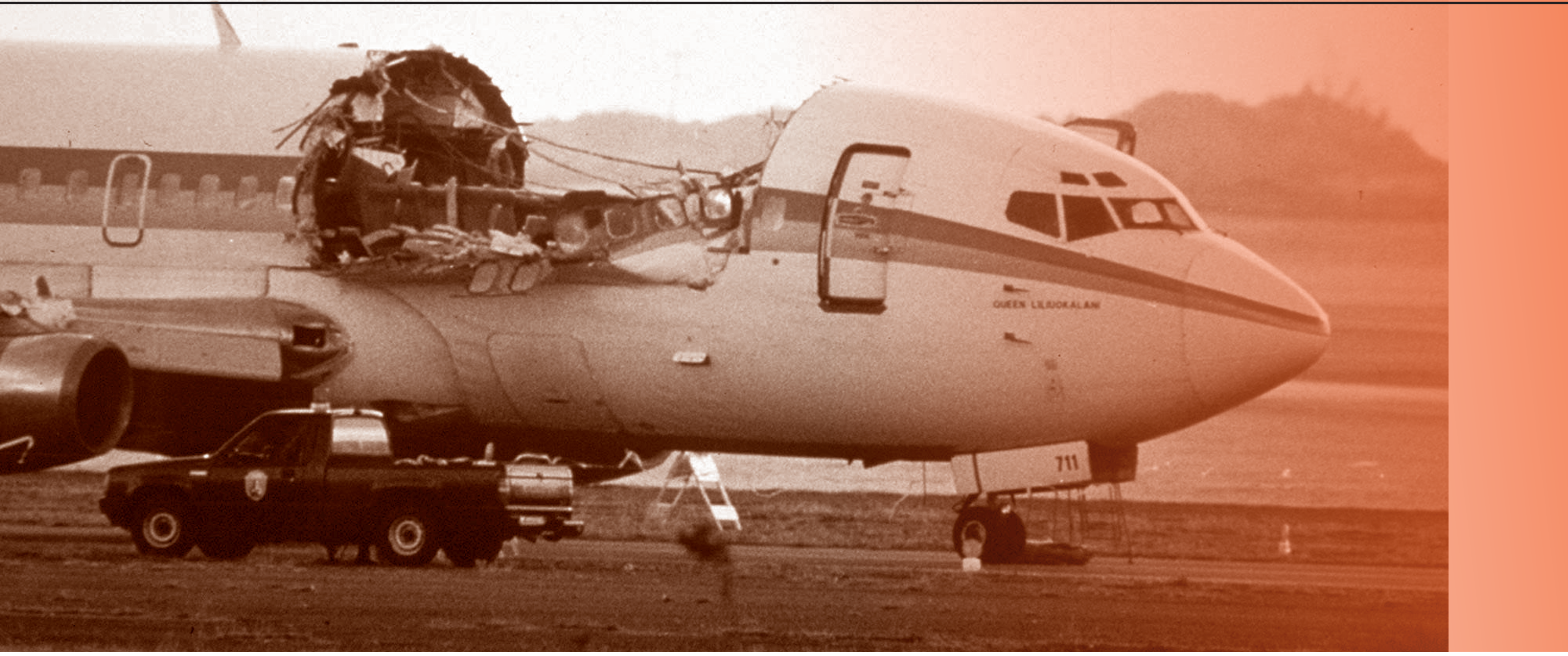
8 Turbine blades in jet engines __________ rapidly.

Discussion

6 Discuss the questions with a partner.

1 How can technology help pilots who ditch at sea?
2 What problems can animals cause aircraft?
3 How will global warming affect aviation in the future?
4 What precautions need to be taken when operating in a very cold environment?
5 What are the worst weather conditions you have experienced when working?

DEPRESSURIZATION



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

top failure damaged structural vehicle section

2.16 Now listen to the sample answer.

1b Answer the questions.

1 How do you think the damage occurred?
2 What would be the effect of the damage on the handling of the plane?
3 What could the pilot have done in order to land the damaged plane successfully?
4 Where do you think the picture was taken?
5 What do you think will happen next?

Plain English – Listening for gist

2a 2.17 Listen to a news report on a depressurization incident. Choose the most suitable heading.

a Terrorist attack grounds plane
b Oxygen cylinder turns into bomb
c Lucky escape for passengers

Plain English – Listening for detail

2b 2.17 Listen again and correct the five errors in the summary.

An oxygen cylinder blew a hole in an A330 leading to a loss of cabin pressure. The aircraft left Oslo with 384 passengers and eight crew. A loud bang was heard just after take-off. No one was hurt but a one-metre rupture was discovered in the fuselage. Cylinders had failed on other aircraft but usually as a result of internal causes such as fire.

Radiotelephony – Listening

3a 2.18 Listen to the dialogue. Decide if the sentences are true or false. Write *T* or *F*.

1 Sunbird 404 is inbound for landing at Exeter.
2 The wind at Exeter is 015 degrees at 40 kn.
3 QNH is 1020 millibars.
4 Sunbird asks London for a straight-in approach from 11,000 ft.
5 They are told to squawk 774.
6 There is a hole in the left side of the aircraft.
7 The emergency services are in place ready for Sunbird 404.
8 Sunbird 404 is cleared to land.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 up / your / breaking / transmission / is

____

2 128.975? / can / switch / you / frequency / to

____

3 work / to / like / would / we / this / frequency

____

4 the / we / attendants / with / communicate / flight / cannot ______________________________

5 we'll / passengers / assistance / the / need / for

____

Clarification

4a Work with a partner. Student A is Firefly 314 climbing FL370, passing FL230. Student B is an ATCO at Brast Centre. Read the dialogue outline and decide what to say.

Firefly 314	Brast Centre
Request immediate descent	
	Clear AC to FL170
Read back	
	Ask for reason for descent
Give reason for descent	
	Ask for details
Give details. Request diversion to Jansted	
	Acknowledge. Instruct pilot to continue descent and contact Janstad approach (132.250)

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

sabotage (n) failure (n) structural (adj) penetrate (v)
rupture (n) discharge (v) external (adj) residue (n)

1 Describing something which has been constructed, such as an aircraft
2 Deliberate damage to somebody else's property
3 An occasion when something breaks open
4 A stoppage or breakdown
5 To force a way into
6 What remains after the main part is removed or gone
7 A release of power
8 Connected to the outside or outside part

5b Complete the investigation on a depressurization incident with words from 5a.

A Royal Air 747-438 lost cabin pressure when a small piece of metal (1) __________ the fuselage causing a (2) __________ which led to decompression. Analysis of the (3) __________ damage and the (4) __________ of the metal left point to an (5) __________ act of aggression rather than an act of (6) __________ from within the plane The possibility of an accidental (7) __________ from a firearm of the perimeter fence personnel has not been dismissed. However a (8) __________ in airport security clearly took place, whether deliberate or not.

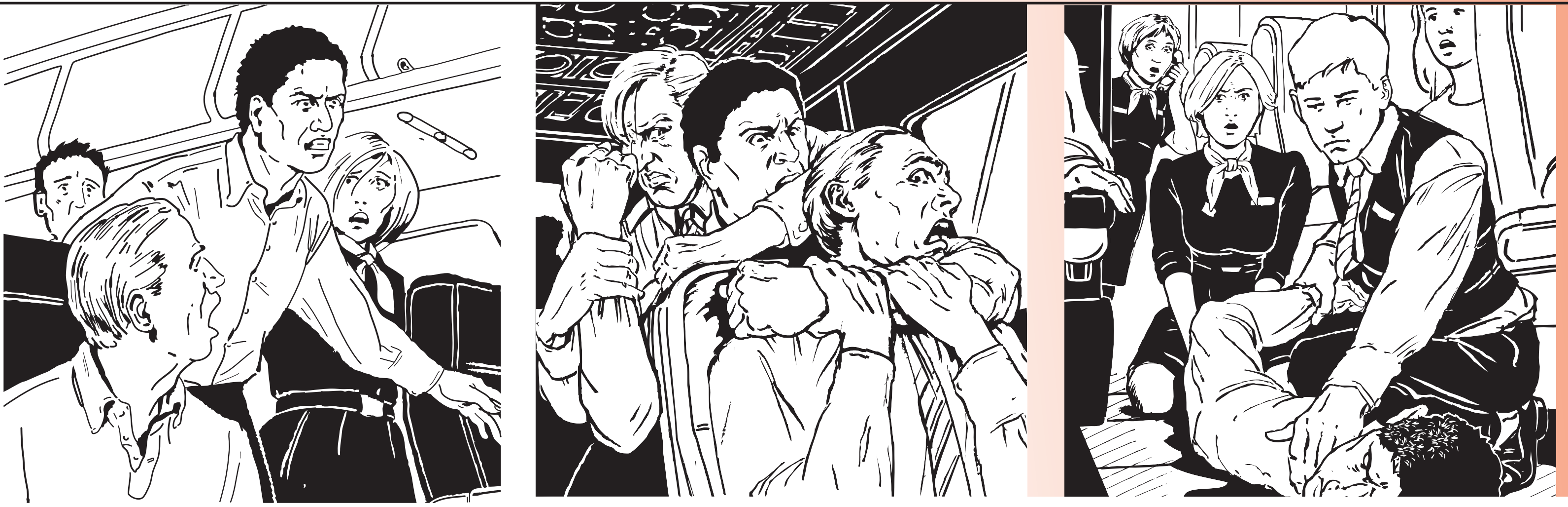
Discussion

6 Discuss the questions with a partner.

1 Describe a depressurization incident you know of or have experienced.
2 What is the effect of depressurization?
3 What are the effects of planes flying at higher altitude?
4 How has the construction of aircraft changed in the last 20 years?
5 What changes do you think will happen to aircraft construction in the future?

Unit 17

PASSENGER PROBLEMS



Describe the pictures

1a Tell the story in the pictures. Use the words in the box.

concerned malicious headlock strangle
wrestle kneel

2.19 Now listen to the sample answer.

1b Answer the questions.

1 Why did the passenger attack the pilot?
2 How did the other passengers feel?
3 What will the flight crew do now?
4 What will the cabin crew do now?
5 How will the man be punished?

Plain English – Listening for gist

2a 2.20 Listen to a news broadcast about an in-flight incident and underline the correct information.

Western Pacific 76 diverted to Seoul at 0930 due **sick / unruly** PAX. Flight attendants/ other PAX unable to **pacify / restrain him. Flight attendants / other PAX** held him down until arrival in Seoul. PAX arrested by **airport security / local law enforcement.**

Plain English – Listening for detail

2b 2.20 Listen again and decide if the sentences are true or false. Write *T* or *F*.

1 A male passenger believed the aircraft was disintegrating.
2 Other passengers restrained his arms and legs.
3 There were several injuries during the struggle.
4 The passenger had consumed alcohol.
5 The passenger took his medication before the flight.
6 The captain thinks the altitude also affected the passenger's behaviour.

Radiotelephony – Listening

3a 2.21 Listen to a conversation between a flight crew and an air-traffic control officer. Put the events in the correct order.

a The ATC asks for the crew's intentions after landing.
b The pilot says a group of people are restraining the unruly PAX.
c The controller confirms the crew's intention to divert.
d The pilot says he will find out where north cargo five is.
e The aircraft is overweight for runway 27L.
f The controller checks on the situation with the PAX.
g The controller offers to contact Indair operations.
h The flight crew would like to park at an Indair gate.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 diversion / understand / you / I / for / looking / a / are __________________________________

2 down / five / about / holding / people / got / him / we've __________________________________

3 is / going / two seven left / not / work / to

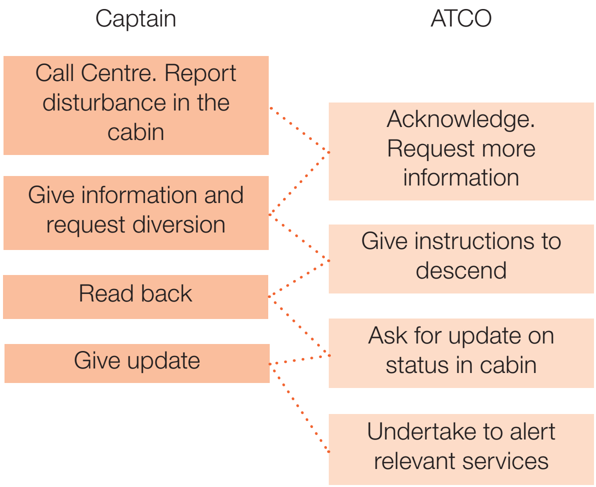
____

4 possible / we'd / to go to / like / if / gate / a company __________________________________

5 me / you / like / would / coordinate / operations? / with / to __________________________________

Clarification

4a Work with a partner. Student A is the Captain of a large passenger jet, call sign Mainline 534, climbing to FL320, passing FL240. Student B is an en-route ATCO at Cortes centre. Read the dialogue outline and decide what to say.


Captain
ATCO
Call Centre. Report disturbance in the cabin
Acknowledge. Request more information
Give information and request diversion
Give instructions to descend
Read back
Ask for update on status in cabin
Give update
Undertake to alert relevant services

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

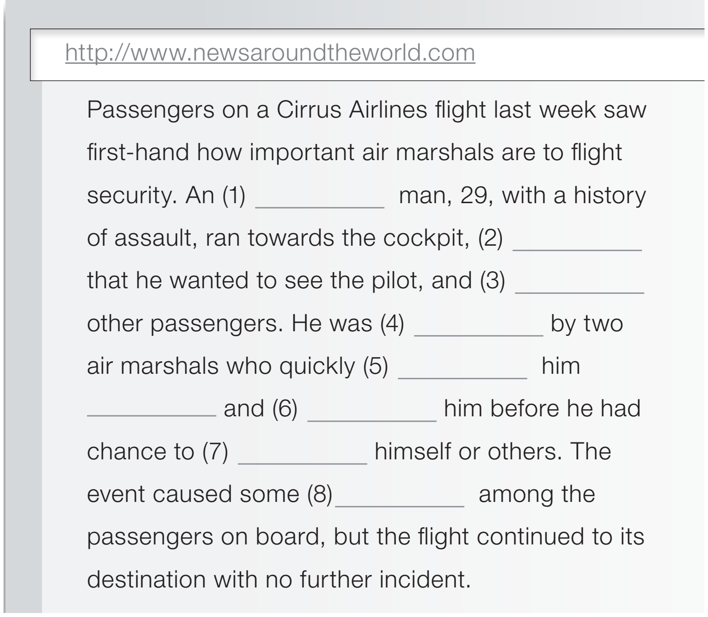
Vocabulary Check

5a Match the words in the box with the definitions.

yell (v) hurt (v) handcuff (v) threaten (v) alarm (n)
hold down (v) confront (v) unarmed (adj)

1 Fear that something unpleasant might happen
2 To go close to someone in a threatening way
3 To cause physical pain or injury
4 To put metal rings on somebody's wrists to restrain them
5 Not carrying a weapon
6 To tell someone that you might cause them harm, in order to make them do something
7 To shout or make a loud noise
8 To hold someone so that they cannot move

5b Complete the news report with the words from 5a.



http://www.newsaroundtheworld.com

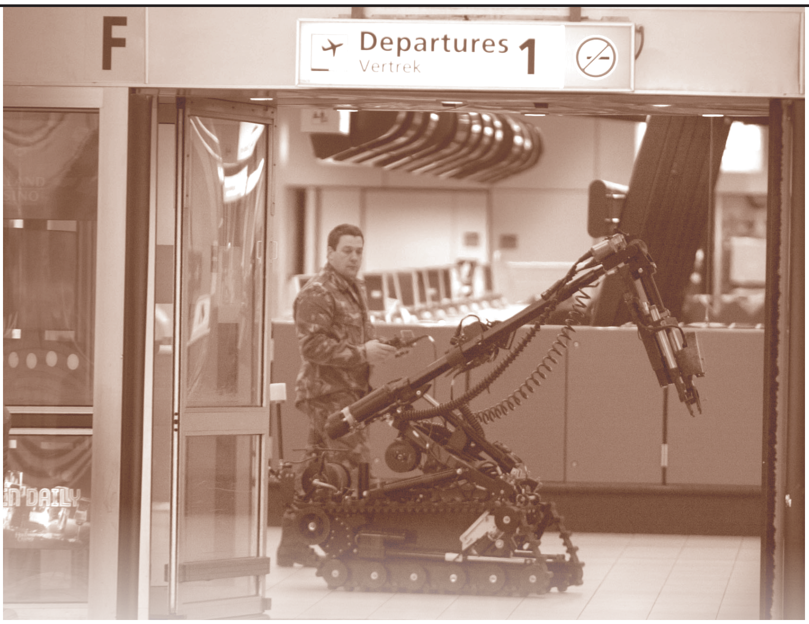
Passengers on a Cirrus Airlines flight last week saw first-hand how important air marshals are to flight security. An (1) __________ man, 29, with a history of assault, ran towards the cockpit, (2) __________ that he wanted to see the pilot, and (3) __________ other passengers. He was (4) __________ by two air marshals who quickly (5) __________ him __________ and (6) __________ him before he had chance to (7) __________ himself or others. The event caused some (8) __________ among the passengers on board, but the flight continued to its destination with no further incident.

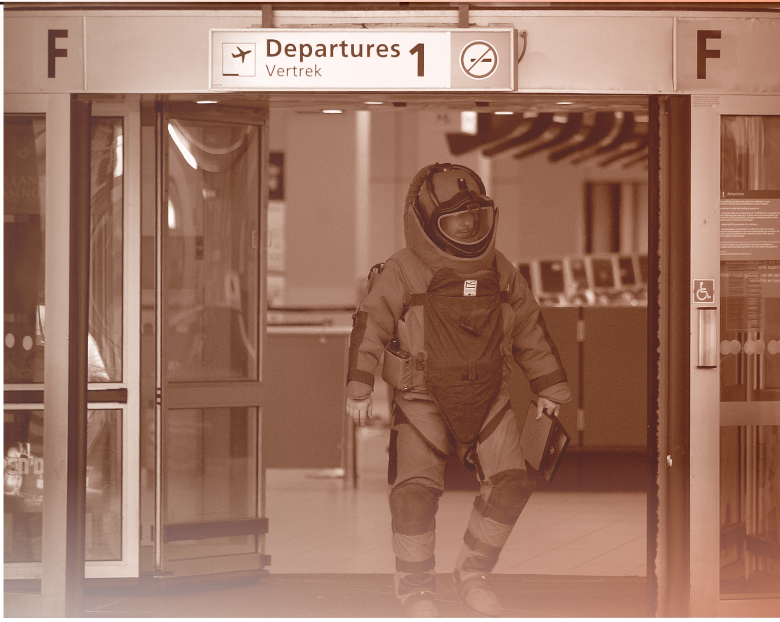
Discussion

6 Discuss the questions with a partner.

1 What routine security procedures do you encounter in your work?
2 What security measures and equipment are in place on board aircraft?
3 What procedures do you follow if you have an unlawful interference at work?
4 What changes do you think will happen in the future? Why?
5 Describe an unlawful interference incident you know of.

BOMB SCARE





Describe the pictures

1a Describe what you can see in the pictures. Use the words in the box.

same sign machine controlled track helmet

2.22 Now listen to the sample answer.

1b Answer the questions.

1 Describe the position of the men in each picture.
2 What are the similarities between the two pictures?
3 What are the differences between the two pictures?
4 Do you think the two pictures are connected to the same incident? Why / Why not?
5 What do you think will happen next?

Plain English – Listening for gist

2a 2.23 Listen to a news report on an attempted hijack. How did the man try to hijack the plane?

Plain English – Listening for detail

2b 2.23 Listen again and answer the questions.

1 Where did the hijacker want the plane to fly to?
2 How old was he?
3 When was he arrested?
4 What do the passengers disagree with the airline about?
5 When did the passengers realize something was wrong?
6 What is the unconfirmed alternative explanation?

Radiotelephony – Listening

3a 2.24 Listen to the dialogue. Make notes under the headings.

Problem	Action	Resolution

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 had / passengers / three / a / report / we / have / suspicious / of ____________________________

2 passengers / aisle / three / armed / are / there / the / in / standing ___________________________

3 the / intend / to / I / put / 'g' / into / negative / aircraft ____________________________________

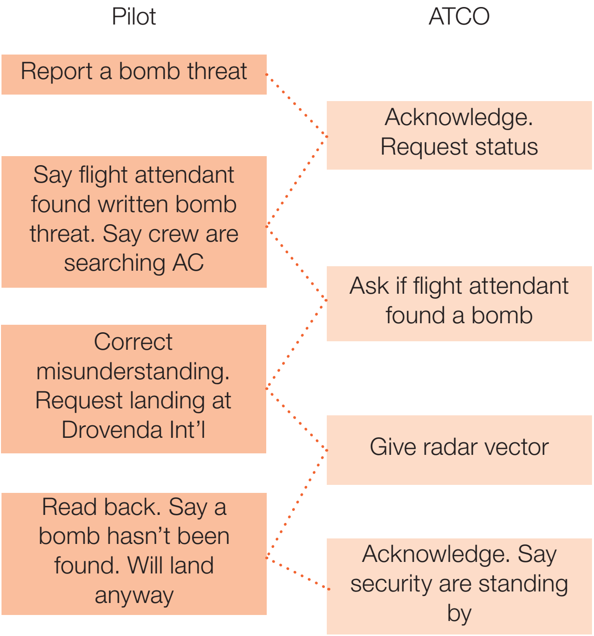
4 security marshals / the purser and / overpower / in / a / position / to / them / are ________________

5 restrained / the / passengers / a bomb / three / package / the / and / is not / are __________

_

Clarification

4a Work with a partner. Student A is pilot of Atlanta 278. Student B is ATCO Western Approach. Read the dialogue outline and decide what to say.



Pilot

ATCO

Report a bomb threat

Acknowledge. Request status

Say flight attendant found written bomb threat. Say crew are searching AC

Ask if flight attendant found a bomb

Correct misunderstanding. Request landing at Drovenda Int'l

Give radar vector

Read back. Say a bomb hasn't been found. Will land anyway

Acknowledge. Say security are standing by

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

suspicious (adj) examine (v) disposal (n) demand (v) armed (adj) air marshal (n) restrain (v) overpower (v)

1 The process of getting rid of something
2 To defeat someone by having greater strength
3 To prevent someone from doing something
4 Making you believe that something is wrong
5 To ask for something forcefully
6 A plain-clothes security officer on board a flight
7 Carrying a weapon
8 To look at something carefully

5b Complete the report on an attempted hijack with the words from 5a.

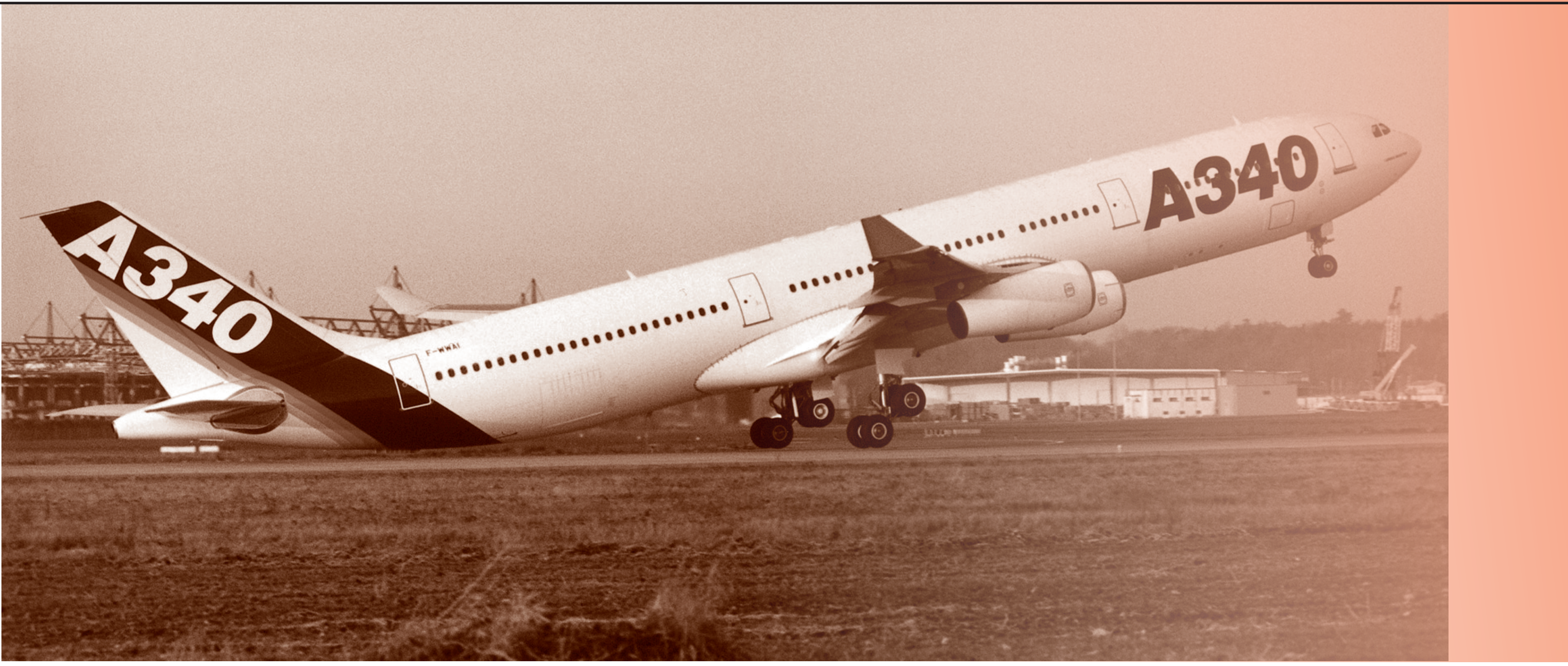
The passenger did not look (1) __________ . He was dressed normally and was calm. About 20 minutes into the flight he stood up and said he was (2) __________ with an explosive device. He (3) __________ that the door to the flight deck be opened. Fortunately an (4) __________ was sat behind the passenger. He managed to (5) __________ him and with the help of other passengers (6) __________ the attempted hijacker. We were worried because we could see that something with wires was attached to his body. But after being (7) __________ by a bomb (8) __________ expert it was found to be a harmless alarm clock wired to a battery.

Discussion

6 Discuss the questions with a partner.

1 What security procedures are in place in your work?
2 What procedures do you have to follow if you have an in-flight bomb threat at work?
3 What is your opinion of current security measures?
4 How has security changed in the last 20 years?
5 What changes do you expect in the future?

TAKE-OFF INCIDENTS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

airborne above scrape tail surface attitude

2.25 Now listen to the sample answer.

Plain English – Listening for gist

2a **2.26** Listen to an air accident investigator giving a press release about an accident at take-off. Underline the correct information in the summary.

An Airbus A340-500 suffered (1) *engine problems / a tailstrike* during take-off. The crew (2) *applied / couldn't apply* more power and the aircraft eventually (3) *came to a stop / lifted off.* After the accident, runway inspectors found (4) *one long scrape / several scrapes* along the runway and onto the runway safety area, and discovered that the aircraft had also struck the (5) *perimeter fence / ground installations.* The (6) *airframe / main landing gear* sustained major damage.

1b Answer the questions.

1 Do you think the aircraft is landing or taking off? Why?
2 Why do you think the tail of the aircraft is so close to the surface?
3 What do you think will happen next?
4 What sort of flight do you think it is?
5 Who do you think took the photograph?

Plain English – Listening for detail

2b **2.26** Listen again and complete the sentences with no more than two words.

1 The __________ was to be the handling pilot for the departure.
2 The __________ selected maximum take-off thrust.
3 The fuselage made contact with the ground __________ times.
4 The aircraft hit a high-intensity __________ strobe light.
5 The __________ portion of the ILS became inoperative.
6 Runway inspectors found an __________ __________ at the end of the runway.

Radiotelephony – Listening

3a 2.27–2.29 Listen to three dialogues and answer the questions (1–6) using the call signs (a–f).

a Goose 506 b Taurus 823 c Flightstar 433
d Azure 525 e Skybird 451 f Easy 775

Which aircraft:

1 needs to contact its company?
2 initiates a missed approach procedure?
3 reports fuel on the ground?
4 reports a fuel leak from an aircraft?
5 has problems in the cabin?
6 reports foreign objects on the ground?

Radiotelephony – Plain English

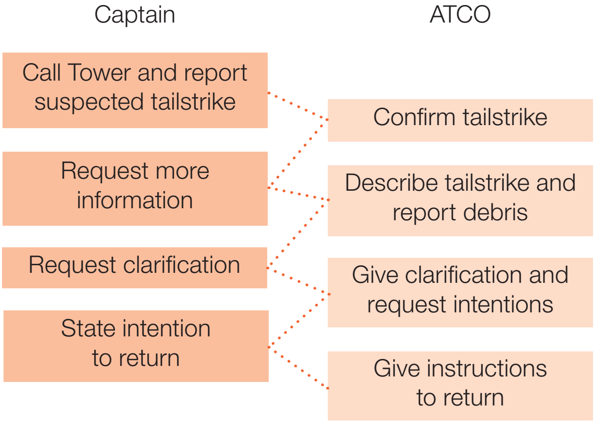
3b Match the beginnings (1–5) with endings (a–e) to make sentences from the dialogue.

1 There's quite a bit of fuel on
2 We could see a leak coming
3 It looked as if it was trailing a
4 It looks like construction material
5 Can you contact your company and

a find out if you can go back to gate 48?
b white vapour on the starboard side.
c the right side of my taxiway.
d all over the runway here.
e out the top of the right wing.

Clarification

4a Work with a partner. Student A is captain of an A340, call sign Tiger 243, departing Vishapur, airborne, passing 500 ft. Student B is a tower ATCO. Read the dialogue outline and decide what to say.


Captain
ATCO
Call Tower and report suspected tailstrike
Confirm tailstrike
Request more information
Describe tailstrike and report debris
Request clarification
Give clarification and request intentions
State intention to return
Give instructions to return

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

leak (v) trail (n) material (n) over (prep) skin (n)
scrape (v) debris (n) abrasion (n)

1 To rub something against a surface
2 The action of rubbing a surface hard enough to damage it
3 Liquid or gas coming out of a hole or crack
4 On something and covering it
5 A substance used for a particular purpose
6 The outer layer of an aircraft
7 The broken pieces that are left when something large has been destroyed
8 A series of marks or objects left by something

5b Complete the notes with the words from 5a.

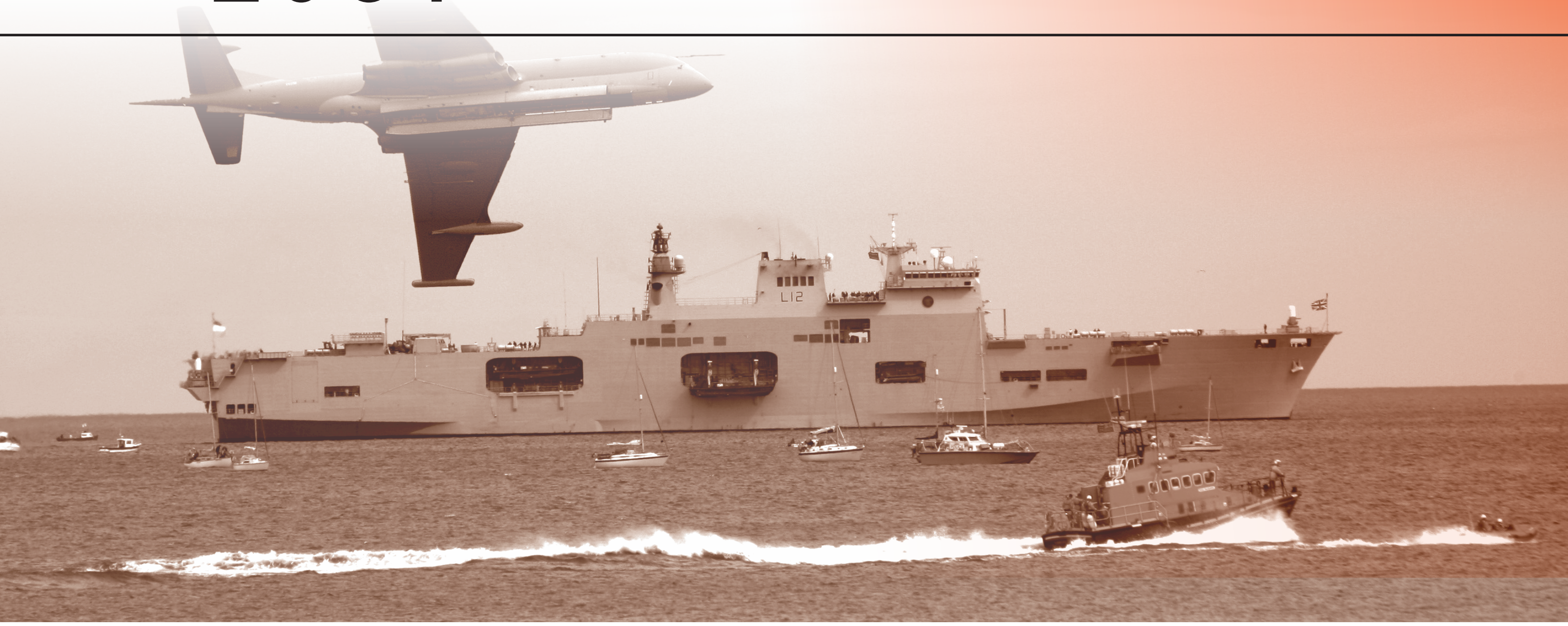
Performed final runway inspection in vehicle 02 after last movements. Approx 1000 ft from end of RWY 14, found several deep (1) ______marks, and runway construction (2) ______ spread (3) ______ the runway. Also found several pieces of metal (4) ______ which looked like (5) ______ pieces of fuselage (6).______ Approx 100 ft further a long (7) ______ of (8) ______ liquid began and continued to end of RWY. RWY unserviceable.

Discussion

6 Discuss the questions with a partner.

1 Describe a take-off incident you know of.
2 What do pilots consider when planning a take-off?
3 What things do ATCs consider when managing departing traffic?
4 What problems are associated with incorrect weight and balance?
5 What other problems can occur at take-off?

LOST



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

calm vessel reconnaissance rescue turn lifeboat

2.30 Now listen to the sample answer.

1b Answer the questions.

1 Where do you think the photo was taken?
2 What do you think happened?
3 Which way is the wind blowing?
4 Where was the photographer in relation to the aircraft?
5 What do you think will happen next?

Plain English – Listening for gist

2a 2.31 Listen to a pilot describing how he became lost. Answer the questions.

1 What caused the instrument failure?
2 Why was it difficult to work with the charts?
3 How did they find out where they were?

Plain English – Listening for detail

2b 2.31 Listen again and fill in the missing words.

1 Paris gave us a __________ heading.

2 The coffee spread across the __________.

3 The screen went blank, __________briefly and went blank again.

4 I switched the screen off before it started smoking or popping __________ __________.

5 Paris enquired whether we were on the__________ .

6 The charts were not aligned to__________ __________.

7 Paris asked us for__________.

8 We stayed on a radar heading until we picked up __________ __________.

Radiotelephony – Listening

3a 2.32 Listen to the dialogue. Choose the correct option to complete each sentence.

1 My instruments *don't seem to be working here / aren't working here.*
2 I appear to have a problem with my *compass / altitude.*
3 You are *four / five* miles from the airport.
4 We're heading straight for the *threshold / middle of the runway.*
5 *Contact / Change to* Humber Tower now at 120.5.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 you / are / emergency? / declaring / fuel / a

____

2 can / vector / airport? / us / see / enough / to / you / the / low ____________________________

3 approach / will / be / a / surveillance / no-gyro / this

____

4 be / airport / o'clock / the / twelve / will ________

____

5 visually / left / 27 / to / cleared / runway / land / continue / are / you ______________________

Clarification

4a Work with a partner. Student A is pilot of IF26EF. Student B is ATC at Elaka Control. Read the dialogue outline and decide what to say.

Pilot	ATCO
Say your instruments are faulty and you're lost	Ask for last known position
Say 18 miles NE of CELRA VOR	Confirm 80 miles NE of CELRA VOR
Clarify	Acknowledge and ask to squawk 6600
Comply	You can't see them. Ask for aircraft details

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

route (n) rescue (v) chart (n) align (v) low (adv)
seem (v) compass (n) gyroscope / gyro (n)

1 To position along an axis or line
2 An instrument which points to magnetic north
3 A course of travel
4 To save somebody or something from danger
5 An instrument that stays steady when it spins around
6 A map for navigation
7 Not high or tall
8 To appear to be something

5b Complete the briefing on a search and rescue mission with the words from 5a.

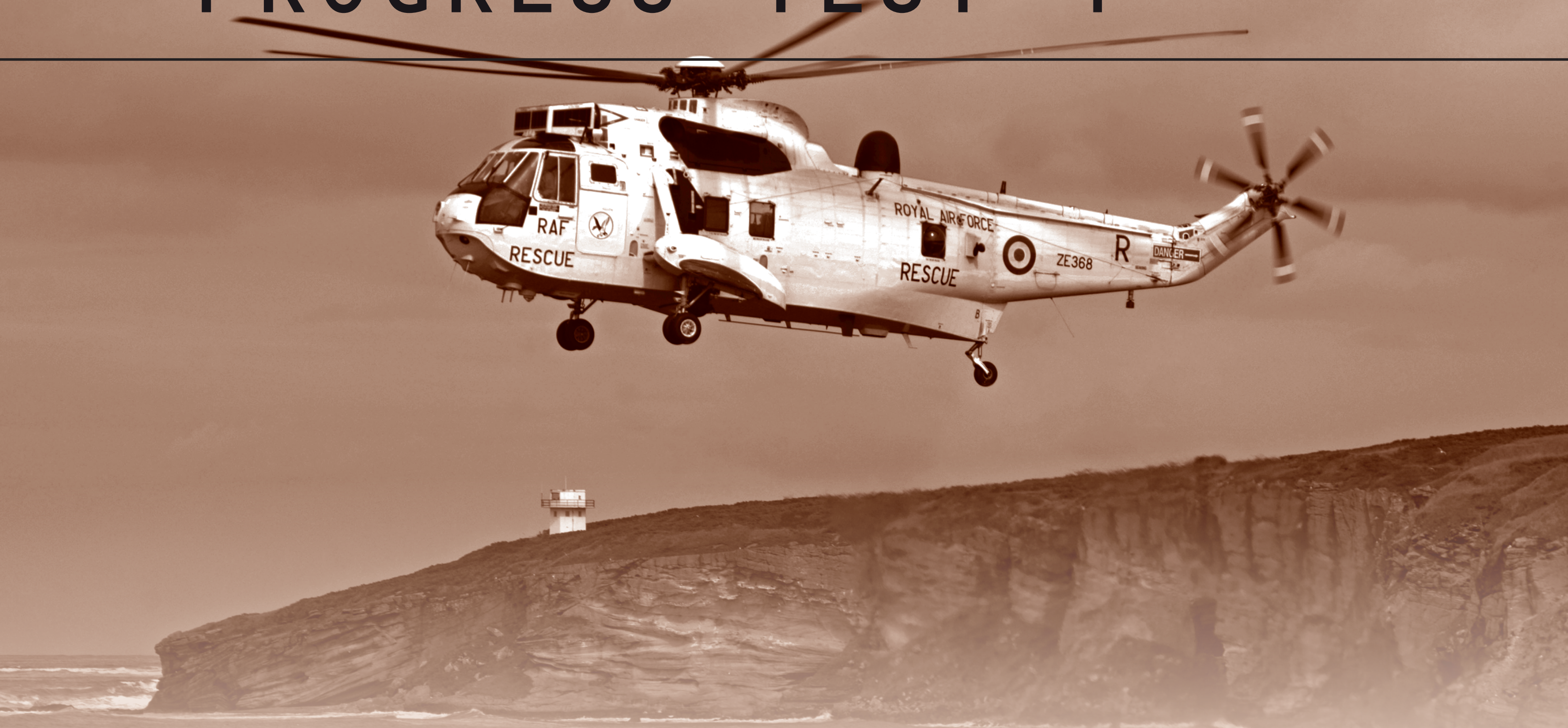
The missing aircraft was on a (1) __________ between Shangtsi and Wuman. The pilot reported (2) __________ problems with the attitude indicator which didn't (3) __________ to be moving. He also wasn't sure that the (4) __________ were (5) __________ to magnetic north as the (6) __________ bearing didn't match. The last thing we heard the pilot say was a request to be vectored (7) __________ enough to see the ground. We will work together with ground reconnaissance to find and (8) __________ everyone on board.

Discussion

6 Discuss the questions with a partner.

1 Describe a search and rescue you have been involved in or know of.
2 Even today pilots can still get lost. Why?
3 How did pilots locate their position 20 years ago?
4 What technology exists to help navigation?
5 How do you think navigation technology will change in the future?

PROGRESS TEST 4



Describe the picture

1a Describe what you can see in the picture.

1b Answer the questions.

1 What is this type of aircraft used for?
2 Where do you think the photo was taken?
3 Where is the aircraft in relation to the cliffs?
4 Do you think the aircraft is inbound or outbound? Why?
5 What do you think will happen next?

2.33 Now listen to the sample answer.

Plain English – Listening for gist

2a **2.34** Listen to an interview with a passenger of an aircraft that experienced decompression. Put the sentences in the correct order.

a His ears hurt. ____________

b The cabin crew strapped themselves in. ____________

c He saw a hole in the side of the aircraft. ____________

d There was an announcement. ____________

e The passenger heard a loud bang. ____________

f The oxygen masks dropped down. ____________

Plain English – Listening for detail

2b **2.34** Listen again and answer the questions.

1 What happened immediately after the bang?
2 What was the passengers' reaction?
3 What did the passenger think was the cause of the depressurization?
4 How long did it take to descend to a safe altitude?
5 What was the passengers' reaction when the aircraft touched the ground?
6 What made the passenger realize how lucky she was?

Radiotelephony – Listening

3a **2.35** Listen to the dialogue. Decide if the sentences are true or false. Write *T* or *F*.

1 D-VT is an IFR flight en route from Dortfeld to Stremmen.
2 D-VT makes visual contact with traffic passing below.
3 D-VT is cleared for a straight-in approach for Stremmen runway 08.
4 The tower controller cannot see D-VT.
5 D-VT can see buildings out of the right window.
6 The tower controller thinks D-VT is approaching a different airfield.

Radiotelephony

3b Rearrange the words to make phrases from the dialogue.

1 above / traffic / over / is / passing / now / you / right / left / slightly / to __________

2 have / you / landing / your / do / on? / lights

____

3 flying / over / now? / what / are / you

____

4 a / road / main / we're / area / over / a / built-up / with / at / 10 o'clock / my __________

5 believe / approaching / you / are / we / airfield / Draburg __________

Clarification

4a Work with a partner. Student A is pilot of Runner 564 on a standard instrument departure altitude 4,000 ft. Student B is an ATCO at Moosan approach. Read the dialogue outline and decide what to say.

Runner 564	Moosan Approach
Call Approach, request immediate return and landing	
	Give vectors
Read back	
	Ask reason for return
Report problem with pregnant PAX	
	Request clarification
Paraphrase problem	
	Acknowledge. Undertake to alert services

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

rupture (n) sabotage (n) hurt (v) suspicious (adj)
examine (v) debris (n) skin (n) align (v)

1 To look at something carefully
2 The pieces that are left when something has been destroyed
3 To cause physical pain or injury
4 The process of breaking open or bursting
5 The outer layer of an aircraft
6 To position along an axis or line
7 Making you believe that something is wrong
8 Deliberate damage

5b Complete the sentences with the words from 5a.

1 The runway was covered with __________ from the burst tyres.

2 The package was __________ because it had wires coming from it.

3 The charts were not __________ with true north.

4 The collision __________ the fuel tank.

5 Sugar in the fuel was an act of __________ .

6 The __________ was damaged by the badly positioned airstair.

7 The inspectors __________ the crash site for possible causes of the accident.

8 The passenger was __________ when the bag fell out of the overhead locker.

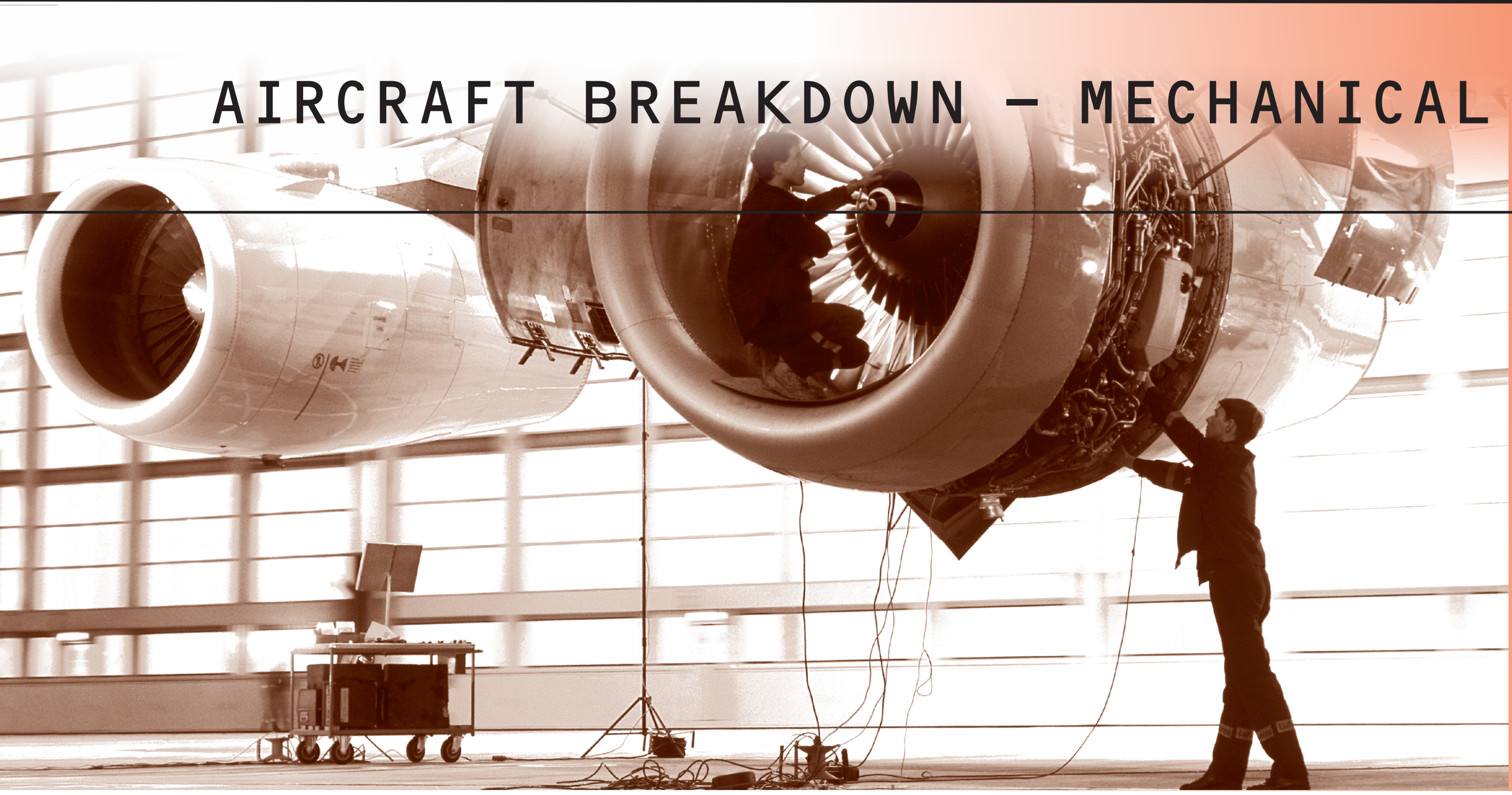
Discussion

6 Discuss the questions with a partner.

1 What are the main effects of depressurization?
2 What are the advantages and disadvantages of flights carrying armed marshals?
3 How do you think aviation security procedures will change in the future?
4 What problems can occur at take-off?
5 Compare navigation now with 30 years ago.

Unit 21

AIRCRAFT BREAKDOWN – MECHANICAL



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

hangar maintenance cowling intake inspect diagnostic

2.36 Now listen to the sample answer.

1b Answer the questions.

1 What systems could the engineers be checking?
2 How long do you think the maintenance will take?
3 How do you think the engineer climbed inside the nacelle?
4 Why was the picture taken?
5 Where was the photograph taken from?

Plain English – Listening for gist

2a 2.37 Listen to four pilots who work for the same company. Decide what they are talking about.

a Flying with inoperative equipment
b Complaints about inoperative equipment
c Which equipment is most often inoperative

Plain English – Listening for detail

2b 2.37 Listen again and decide if the sentences are true or false. Write *T* or *F*.

1 One aircraft's APU has been inoperative for some time.
2 One of the pilots recently flew multiple legs without a functioning autopilot.
3 DB stopped flying due to medical reasons.
4 DB had been a military pilot.
5 DB didn't mind pilots complaining about inoperative equipment.
6 Once, a captain didn't accept an aircraft because of the refreshments on board.

Radiotelephony – Listening

3a 2.37 Listen to the dialogue between pilots and am air traffic controller and underline the correct information.

1 The pilot needs to *do a visual inspection / rectify the problem / wait for maintenance.*
2 RWY 34 becomes the active runway for *departing / arriving / all* aircraft.
3 The doors *are not touching the ground / are touching the ground / have broken off.*
4 The pilot needs to *secure the doors / remove the doors / disembark the PAX.*
5 The pilot *doesn't have / has / requests* specific equipment.
6 A engineer *is not available / will arrive in a short time / will arrive after a long wait.*

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 out / of service / disabled / runway 26 / aircraft / due ______________________________

2 want / you / do / disembark / to / passenger / your ______________________________

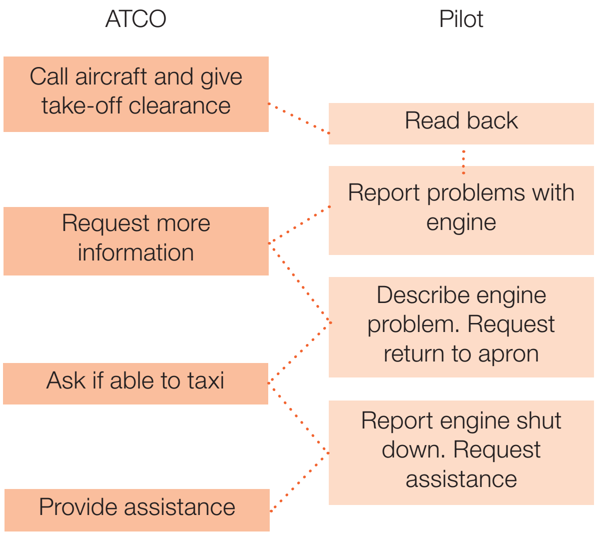
3 get / main / the / landing gear / need to / we / pinned ______________________________

4 the field / there / is / maintenance / it? / on / that can / do ______________________________

5 for / we're / you / checking if / a mechanic / is / site / on ______________________________

Clarification

4a Work with a partner. Student A is a tower ATCO at Fuimo Airfield. Student B is the pilot of a single engine light aircraft, call sign ITM, in position for departure on RWY 18. Read the dialogue outline and decide what to say.


ATCO
Pilot
Call aircraft and give take-off clearance
Read back
Report problems with engine
Request more information
Describe engine problem. Request return to apron
Ask if able to taxi
Report engine shut down. Request assistance
Provide assistance

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

mechanic (n)   release (n)   inoperative (adj)   refuse (v)
sort out (v)   hangar (n)   install (v)   MEL (n)

1 Not working
2 The act of letting someone or something leave a place in order to do a job
3 A document which provides for the operation of an aircraft in airworthy conditions
4 Someone whose job is to repair machines
5 To say that you do not want what someone has offered to you
6 A large building where aircraft are kept
7 To solve a problem successfully
8 To put a piece of equipment in place

5b Complete the B737-400 captain's report with the words from 5a.

CONFIDENTIAL INCIDENT REPORTING

Arrived at aircraft which had just spent two days in the (1) __________ . Dispatch (2) __________ paperwork indicated that there was an (3) __________ in place for the secondary jump seat oxygen mask. The release indicated that the captain's oxygen mask was defective so it had been (4) __________ in the secondary jump seat position. The captain's position had been fitted with the serviceable mask from the secondary jump seat. However, the aircraft logbook indicated that the captain's oxygen mask was (5) __________ . In my opinion this is a no-go item so I (6) __________ the aircraft. I asked a (7) __________ to come to the aircraft to (8) __________ the problem.

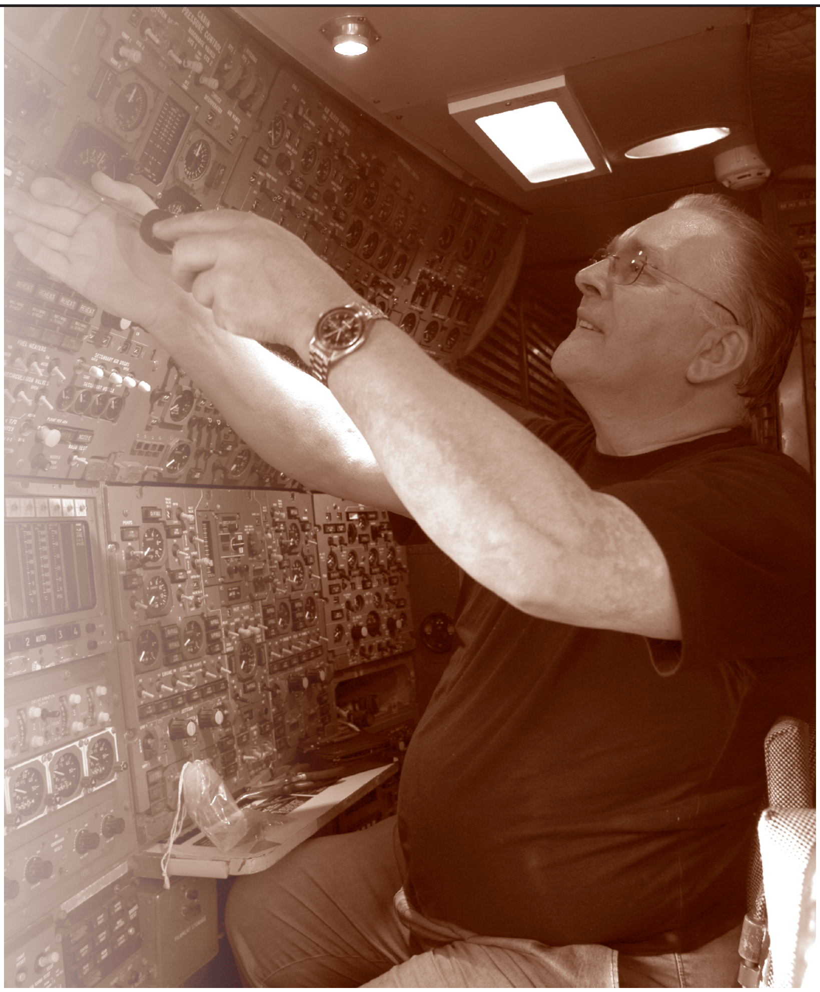
Discussion

6 Discuss the questions with a partner.

1 Describe the maintenance facilities at an airport you know.
2 Have you ever experienced a mechanical problem with an aircraft?
3 How common is unscheduled aircraft maintenance?
4 How does unscheduled aircraft maintenance affect airlines?
5 How do aircraft breakdowns affect airport operations?

Unit 22

AIRCRAFT BREAKDOWN – ELECTRICAL



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

engineer instruments internal hand tray electronics

2.39 Now listen to the sample answer.

1b Answer the questions.

1 What is the aircraft?
2 Where was the photographer in relation to the engineer?
3 What is the engineer adjusting?
4 Why do you think this piece of equipment needs adjusting?
5 What do you think will happen next?

Plain English – Listening for gist

2a **2.40** Listen to an instructor introducing some aviation reports and choose the most appropriate heading.

a Common electrical problems in aviation
b Pilot error in aviation
c Pilot effect on electrical problems

Plain English – Listening for detail

2b **2.40** Listen again and decide if the sentences are true or false. Write *T* or *F*.

1 The reports were very detailed.
2 The Cessna had a loose alternator field wire.
3 The air taxi departed alternators off with drained batteries and used manual gear.
5 The pilot locked the landing gear down.
4 Another pilot descended from altitude and did a short cruise descent.
6 The aircraft had generators instead of alternators.

Radiotelephony – Listening

3a **2.41** Listen to the monologue. Complete the questions the controller asks

1 Do you have ______________________?
2 Are you able to give me ______________________?
3 Are you able to give me ______________________?
4 Can you see ______________________?
5 Are you on ______________________?
6 F-CP can you ______________________?

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 see / you / think / I / radar / on / I ______________

____

2 turn / that / watch / way / if / you / I'll / to / see

____

3 lights / the / try / get / on / turned / to / I'll

____

4 conflict / known / no / there / in / to / is / vicinity / the / traffic ______________________________

5 anti-collision / has / beacon / an electrical problem / may have / and / no / he / or strobes ______________

____

Clarification

4a Work with a partner. Student A is ATCO. Student B is the pilot. Read the dialogue outline and decide what to say.

ATCO	Pilot
Ask if the electronics are working	Say you're on back-up power
Repeat question	Say unsure if you can be heard
Acknowledge and ask about instruments	Say no, electrical problem. Might have to divert
Say Saltash nearest, they will have to turn on lights	Affirm divert to Saltash

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

delicate (adj) alternator (n) loose (adj) generator (n) output (n) charge (v) strobe (v) wire (n)

1 A power-operated device for producing electricity
2 A strong electric light that flashes very quickly
3 Needing skilful and careful treatment
4 A long thin piece of metal that carries electricity
5 The amount of something that is produced
6 A piece of equipment that produces an electrical current
7 Not fixed in position
8 To put electricity into something

5b Complete the report on an electrical failure using the words from 5a.

There was not a sufficient alternating current because one of the (1) __________ leading to the (2) __________ was (3) __________ . This meant the battery was not (4) __________ and the (5) __________ was not enough to maintain the (6) __________ . Consequently the aircraft was not visible in the dark. The electrical system on this type of aircraft is quite (7) __________ and easily damaged. However whatever type of (8) __________ is being used to produce power, battery levels should be monitored at all times.

Discussion

6 Discuss the questions with a partner.

1 Describe an electrical fault you have had or have heard about.
2 What do you think are the main causes of electrical faults?
3 How has technology changed the electric systems in aircraft?
4 What is your favourite electronic aviation gadget? Why?
5 How do you think electronic systems will change in the future?

Unit 23

VOLCANOES

Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

active erupting plume ash steam cloud

2.42 Now listen to the sample answer.

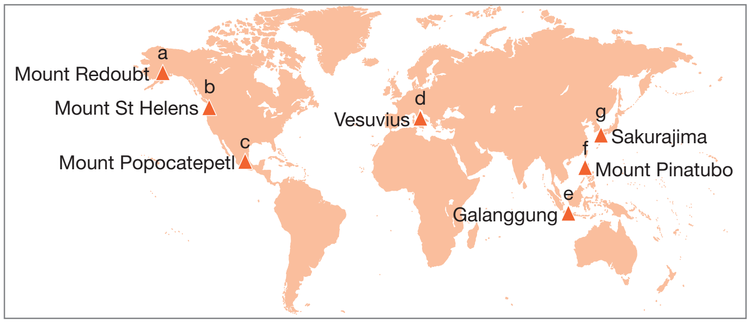
1b Answer the questions.

1 Which region of the world do you think the picture was taken in? Why?
2 At what time of day was the picture taken?
3 Who took the picture?
4 What effect would this have on flight operations?
5 What do you think will happen next?

Plain English – Listening for gist

2a 2.43 Listen to an aviation safety consultant giving a seminar on volcanic activity. Which four volcanoes on the map does he talk about?

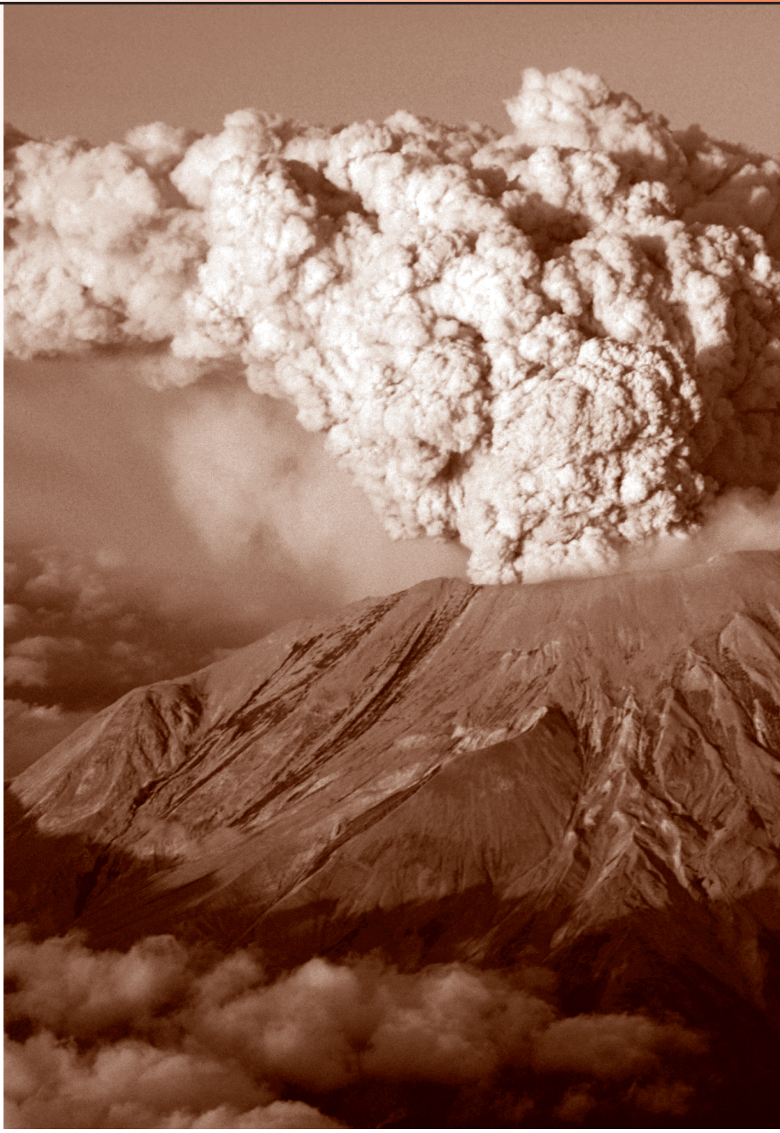
1 ______ 2 ______ 3______ 4 ______



Plain English – Listening for detail

2b 2.43 Listen again and match the events with the volcanoes (a–f).

1 A powerless descent ______
2 Closure of an airfield ______
3 Replacement of aircraft engines (2) ______
4 Damage to a brand new aircraft ______
5 Ash causing reduced visibility at an airfield (2) ______
6 Difficulties in advising pilots of the position of ash clouds ______



Radiotelephony – Listening

3a 2.44 Listen to the dialogue. Underline the correct information.

1 The Asiana pilots report a *weak / strong* smell of volcanic ash.
2 They wish to *climb from / remain at* present altitude.
3 Astanaline is flying at a *higher / lower* altitude than Asiana.
4 The Asiana crew smelt volcanic ash for *60 / 70* km.
5 They describe the volcanic cloud layer as a *light / dense* haze.
6 They are *confident / not completely sure* of the cloud's direction of travel.

Radiotelephony – Plain English

3b Match the beginnings (1–5) and endings (a–e) to make sentences from the dialogue.

1 Do you have any reports
2 We have had a faint smell of volcanic ash
3 Say position where
4 Do you have any idea
5 Direction of cloud

a you experienced the volcanic ash.
b of volcanic ash en route?
c for about three or four minutes now.
d movement was undetermined.
e which direction the cloud was moving?

Clarification

4a Work with a partner. Student A is the pilot of a narrow-body passenger jet, call sign Island 549, climbing to FL270, passing FL200. Student B is an en route ATCO at Dawangi Centre. Read the dialogue outline and decide what to say.

Pilot	ATCO
Call Centre and report smell of ash	
	Acknowledge. Ask when first detected
Explain duration	
	Request visibility
Describe visibillity. Report deterioration	
	Request wind direction and speed
Say wind direction and speed	
	Relay PIREP of ash and suggest action

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

smell (n) haze (n) fall (n) conical (adj) crater (n)
rim (n) lava (n) slope (n)

1 The side of a hill or a mountain
2 When something falls to the ground
3 The edge of an open container or circular object
4 Water, smoke, or dust in the air
5 In the shape of a cone
6 Rock in the form of hot liquid
7 The round hole at the top of a volcano
8 The quality of something that you notice when you breathe in through your nose

5b Complete the extract from an air-traffic management paper about volcanoes with the words from 5a.

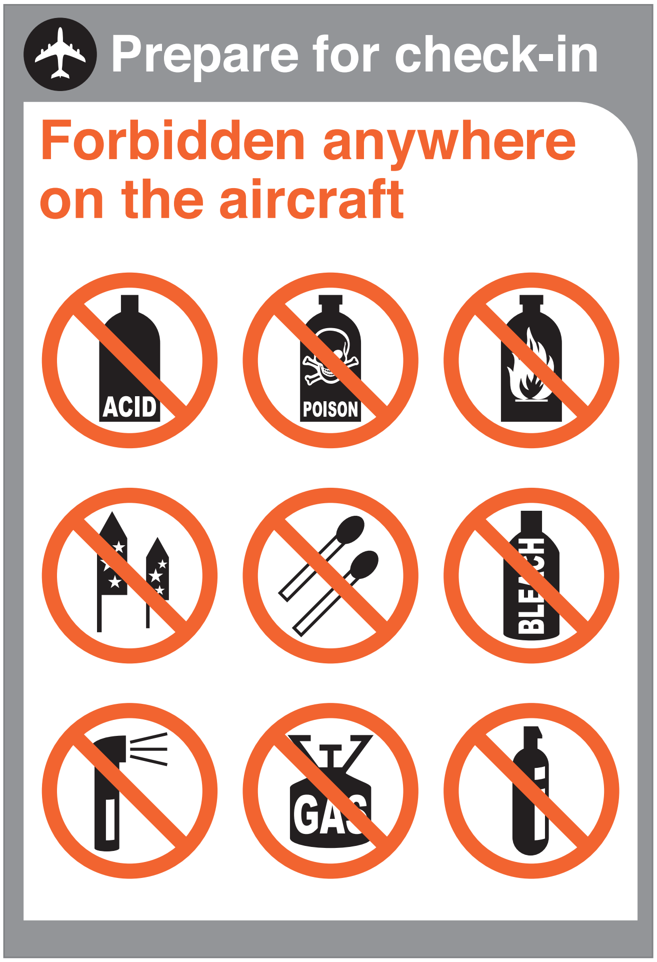
4,750 m in elevation and (1) __________ in shape, Klyuchevskoy is Kamchatka's highest and most active volcano. In 1994, pilot reports of (2) __________ , coupled with a strong (3) __________ of sulphur were followed by a major eruption. On 4th May 2007, residents of the village of Klyuchi, 30 km NNE of the volcano, heard explosions and reported ash (4) __________ . More recently, in November 2009, (5) __________ began to flow over the (6) __________ and down the SE (7) __________ of Klyuchevskoy after the (8) __________ overflowed.

Discussion

6 Discuss the questions with a partner.

1 What are the effects of flying through a volcanic eruption?
2 What signs may indicate that an aircraft is flying through volcanic ash?
3 What should pilots do if they encounter volcanic ash?
4 What effect can a volcanic eruption have on the local environment and community?
5 What other seismic activity can affect aviation?

DANGEROUS GOODS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box

flammable explosive fireworks matches torch canister

3.01 Now listen to the sample answer.

1b Answer the questions.

1 Why are these items forbidden?
2 Where would you find a sign like this?
3 Why does the sign use pictures?
4 What equipment and procedures are used to check passengers and crew?
5 What happens to passengers who try to carry these items on board?

Plain English – Listening for gist

2a 3.02 Listen to a presentation on dangerous goods. Tick (✓) the items mentioned.

☐ pesticides
☐ aerosols
☐ corrosives
☐ dye cartridges
☐ solvents
☐ matches
☐ poisons
☐ explosives
☐ infectious substances
☐ mercury

Plain English – Listening for detail

2b 3.02 Listen again and underline the correct information.

1 Dangerous goods are substances which are capable of posing a significant risk to *life / health.*
2 You may feel comfortable storing dangerous items at home because *you know how they will behave / they are not as dangerous in the home.*
3 Put dangerous goods under severe atmospheric pressure and you *can / can't* predict what will happen.
4 *Temperature variations / Vibration* can cause book matches to ignite.
5 A mercury leak *weakened / didn't weaken* the skin of the aircraft.

Radiotelephony – Listening

3a 3.03 Listen to the dialogue. Decide if the sentences are true, false or if the information is not mentioned. Write *T, F* or *NM.*

1 The steward discharged the H_2O extinguisher.
2 The steward thinks the source of the heat is the cargo hold.
3 To begin with, there isn't any smoke.
4 The smoke is coming through the vents.
5 The pilot diverts to the nearest airfield.
6 The crew are preparing for an immediate evacuation.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 cabin / the / we've / fumes / got / in

____

2 to / it's / hurt / starting / my / eyes

____

3 if / me / call / changes / important / anything

____

4 back / you've / got / big / here / a / problem

____

5 soon / we'll / ground / on / the / be

____

Clarification

4a Work with a partner. Student A is the pilot. Student B is the flight attendant. Read the dialogue outline and decide what to say.

Attendant	Pilot
Tell the pilot there is a strange smell	
	Ask if it's coming through the air vents
You're not sure where it's coming from	
	Ask the FA to check the overhead lockers
You already have. Say where you think it's coming from	
	Ask why the steward thinks so
Explain the floor is hot	
	Ask where

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

forbidden (adj)   symbol (n)   hold (n)   floor (n)
substance (n)   precaution (n)   handler (n)   stack (v)

1 Someone whose job is to move goods
2 The flat place you can walk on
3 To put one on top of the other
4 An area or compartment within an aircraft for carrying freight
5 A type of solid, liquid or gas
6 Not allowed
7 A picture or shape used to represent something
8 Something done to protect people or things from possible harm

5b Complete the advice to airport staff using words from 5a.

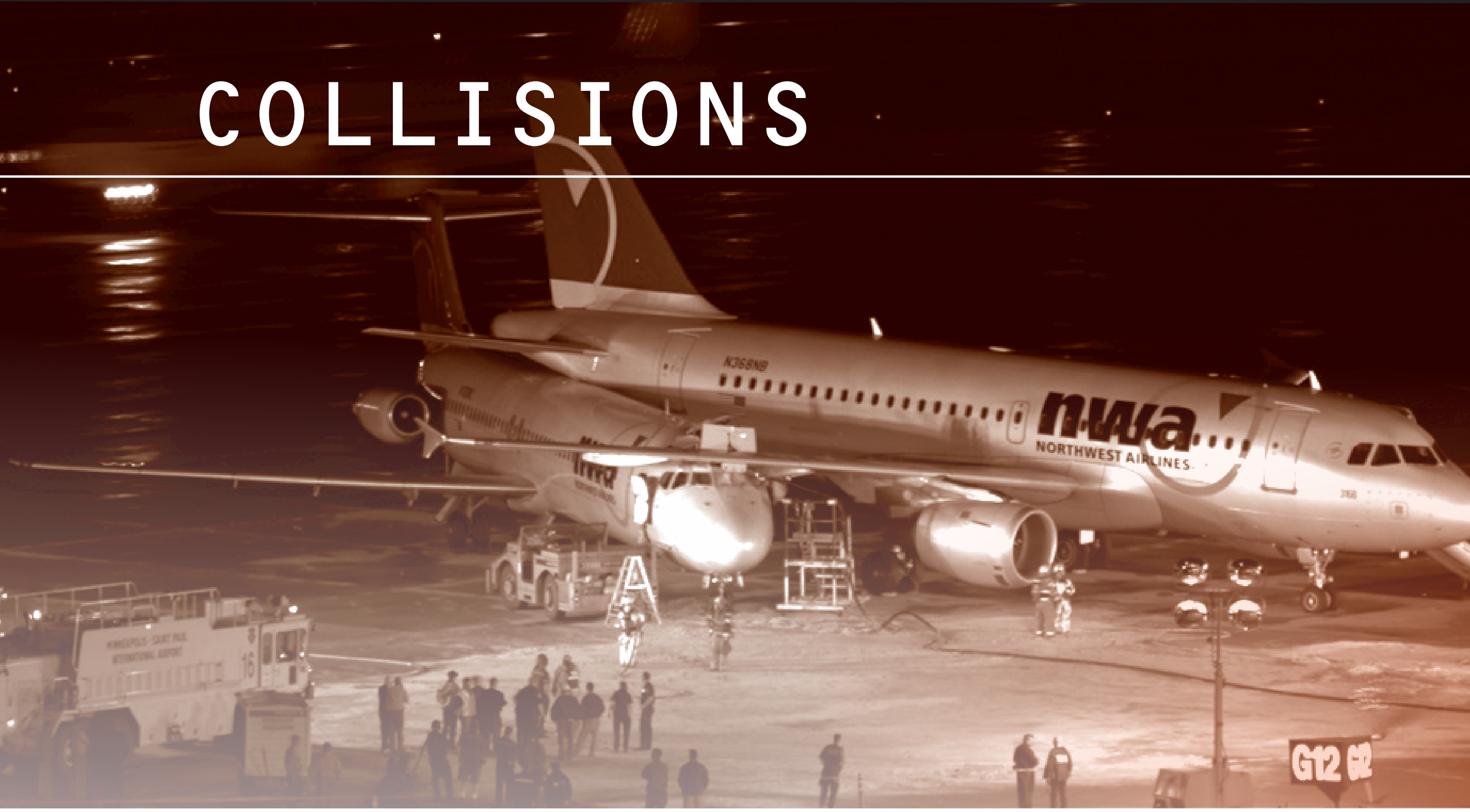
All baggage (1) __________ must take all (2) __________ to ensure the safety of passengers and cargo at all times. Look for any (3) __________ that signal dangerous (4) __________ and take the appropriate action. If any of the cargo is (5) __________ notify the supervisor immediately and do not load onto the aircraft. Any goods which are (6) __________ on the (7) __________ in the (8) __________ must be securely fastened to make sure they do not move during flight.

Discussion

6 Discuss the questions with a partner.

1 What type of goods are most dangerous?
2 Should passengers and dangerous goods be transported on the same flight?
3 Describe any incidents / accidents you know of that have been caused by dangerous goods.
4 How might the transportation of dangerous goods change in the future?
5 Do you think it is better to transport dangerous goods by air or sea? Why?

COLLISIONS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

collide lodge trailing edge slice empennage floodlit

3.04 Now listen to the sample answer.

1b Answer the questions.

1 Why do you think this incident happened?
2 How long after the collision do you think the picture was taken?
3 Where was the photographer in relation to the aircraft?
4 How long do you think it will take to rectify the situation?
5 What do you think will happen next?

Plain English – Listening for gist

2a **3.05** Listen to three tower controllers talking about ground collision incidents. Answer the questions.

1 How many incidents do they mention?
2 What part of the aircraft are they talking about?

Plain English – Listening for detail

2b **3.05** Listen again and decide if the sentences are true or false. Write *T* or *F*.

1 An A340 and a B747 collided at Heathrow.
2 Passengers thought that the A340 was unsafe.
3 The BA was moving at the time of the collision.
4 An A380 collided with another aircraft in Thailand.
5 The Configuration Deviation List (CDL) applies to removal of equipment after collision.
6 In Seattle an MD80 struck a taxiing A340.

Radiotelephony – Listening

3a **3.06** Listen to a dialogue between pilots and an air-traffic control officer. Answer the questions using the call signs in the box.

G-JG G-ME G-ER

Which aircraft:
1 is outbound?
2 are inbound?
3 reports a collision?
4 is instructed to stay in the circuit?
5 disembarks to inspect the aircraft?
6 taxi to the apron?

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 be / traffic / direction / there will / backtracking / opposite ______________________________

2 to / side / the / right / keep / right-hand

____

3 just / the / piper / brushed / tip / left / our / wing

____

4 step / of / permission / out / to / request / aircraft / the ______________________________

5 you / telephone / could / when / have / parked / you / me? ________________________

Clarification

4a Work with a partner. Student A is the first officer of a small passenger aircraft, call sign Sparrow 734, taxiing for departure. Student B is a ground ATCO at Andong Regional Airport. Read the dialogue outline and decide what to say.

First Officer	ATCO
Call Tower and report collision	Request position
Say position	Request details
Give details	Send vehicle and request report of damage
Give report of damage and state current action	Offer assistance for passengers

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

stationary (adj) strike (v) clip (v) lodge (v) slice (v)
underside (n) contact (n) tip (n)

1 A narrow or pointed end, especially of something long or thin
2 Not moving
3 To hit against, or to crash into, someone or something
4 To hit something accidentally while passing it
5 To become firmly fixed somewhere, usually accidentally
6 To cut something easily
7 The bottom side or surface of something
8 Touch

5b Complete a tower controller's incident report with the words from 5a.

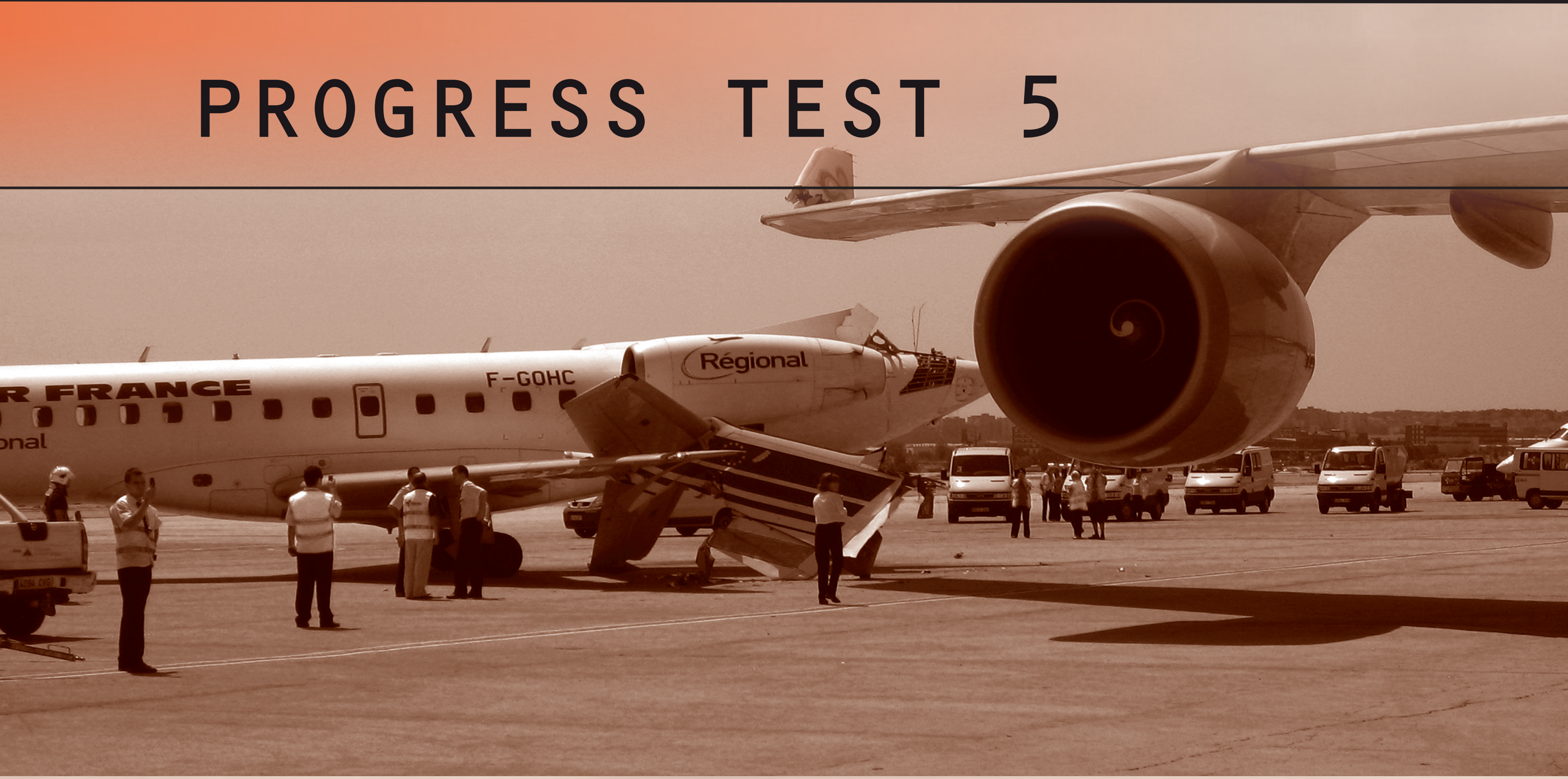
ACFT 1 was hand-propped without chocks. Upon engine start, the ACFT rolled 20 m and the right wing (1) __________ the vertical tailplane of ACFT 2 which was (2) __________ at the time the collision. The right (3) __________ of ACFT 1 (4) __________ through the rudder of ACFT 2 and swung sharply around to the right. The propellers (5) __________ the (6) __________ of the fuselage of ACFT 2 and the nose became (7) __________ under ACFT 2. The right wing also made (8) __________ with the aft portion of the fuselage of ACFT 2. No one was injured.

Discussion

6 Discuss the questions with a partner.

1 Describe a ground collision incident you know of.
2 What factors can affect the safe movement of aircraft on the ground?
3 Why is the aircraft manoeuvring area potentially hazardous?
4 How common are aircraft collisions in the aircraft manoeuvring area? Why?
5 What effect can an aircraft collision have on airport operations?

PROGRESS TEST 5



Describe the picture

1a Describe what you can see in the picture.

1b Answer the questions.

1 What do you think happened?
2 Where do you think the photo was taken?
3 Where are the aircraft in relation to each other?
4 What time of day do you think it is?
5 What do you think will happen next?

3.07 Now listen to the sample answer.

Plain English – Listening for gist

2a **3.08** Listen to a report on an unusual airborne / land operation. What was the purpose of the reconnaissance team?

Plain English – Listening for detail

2b **3.08** Listen again and underline the correct answer.

1 An airdrop was the *easiest / only* way to get supplies into the area.
2 The parachutists *did / didn't* have help from ground crew.
3 Information was supplied by men *in the air / on the ground.*
4 Drops are usually made *above / below* 1,000 m.
5 The food was *scattered around / dropped in the right places.*
6 *The terrain / Tiredness* made the mission difficult.

Radiotelephony – Listening

3a **3.09** Listen to the dialogue. Complete the statements with the call signs.

Eastern 625 Airtrans 323 EI-TFC Eastern 865
ARMYAIR 232

---

1 __________ is not responding to ATC calls.
2 __________ makes a slow 180 degree right-hand turn.
3 __________ is not cleared to join the airway.
4 __________ is too heavy to cross the airway in time.
5 __________ and __________ have to remain outside controlled airspace.
6 __________ and __________ make visual contact with the distress aircraft.
7 __________ reports an electrical malfunction.

Radiotelephony – Plain English

3b Match the beginnings with the endings to make phrases from the dialogue.

1 The aircraft behind you appears
2 Remain outside controlled airspace
3 We tried to slow him down
4 We've got serious problems
5 We're trying to ascertain

a the cause now.
b with our electrics and radios.
c due aircraft in urgency situation.
d to have a comms failure.
e and put him behind you.

Clarification

4a Work with a partner. Student A is pilot of TI-MOO on an IFR departure from Santa Catalina passing 1,300 ft. Student B is an ATCO at Santa Catalina Tower. Read the dialogue outline and decide what to say.

TI-MOO	Tower
Call Approach, say position and report problem with flaps	Request clarification
Give clarification. Request return to airfield	Acknowledge and give instructions
Read back and report abnormal flap landing	Acknowledge, say you will call emergency services
Report extended roll out due brake problems on landing	Acknowledge, say services will be in position

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

install (v) inoperative (adj) wire (n) loose (adj)
haze (n) stationary (adj) underside (n) tip (n)

1 Not fixed in position
2 Water, smoke, or dust in the air that makes it difficult to see clearly
3 To put a piece of equipment somewhere and make it ready for use
4 Not moving
5 A narrow or pointed end, especially of something long or thin
6 The bottom side or surface of something
7 A long thin piece of metal that carries electricity
8 Not working

5b Complete the sentences with the words from 5a.

1 The chocks were put on to make sure the aircraft remained __________.
2 The cargo was scattered in the hold because of the __________ straps.
3 The short circuit had made the radio __________.
4 The mechanic always got a sore neck when working on the __________ of the aircraft.
5 The fly-by-wire flight deck had all the latest gadgets __________.
6 The __________ of the radio mast was just visible above the building.
7 Visibility was minimal due to the __________ from the sandstorms.
8 A faulty __________ led to the electricity failure.

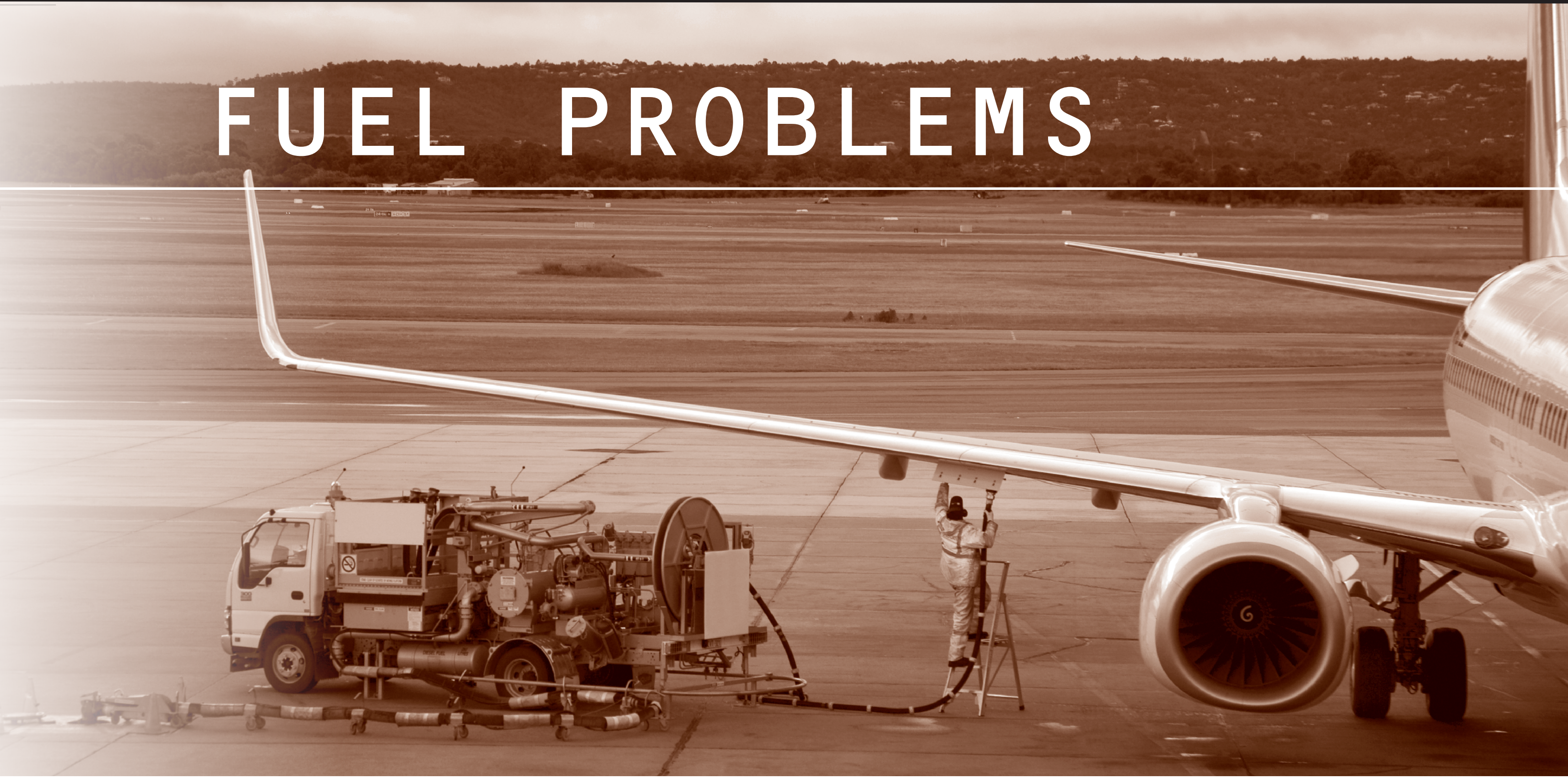
Discussion

6 Discuss the questions with a partner.

1 What can be done to improve aircraft maintenance?
2 How will technology affect electronic systems in the future?
3 How can seismic activity affect aviation?
4 What is the most unusual cargo you've carried or heard about being carried?
5 How can technology help prevent collisions on the ground?

Unit 26

FUEL PROBLEMS



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

refuelled hillside underground vehicle clothing wing

3.10 Now listen to the sample answer.

1b Answer the questions.

1 Where is the fuel stored?
2 What do you think the pilots are doing while the aircraft is being refuelled?
3 Where are the fuel tanks on this aircraft?
4 Where do you think the picture was taken?
5 What do you think will happen next?

Plain English – Listening for gist

2a 3.11 Listen to a news bulletin about problems with new aircraft and answer the questions.

1 What is the problem?
2 What are the airline doing?

Plain English – Listening for detail

2b 3.11 Listen again and put the events in the correct order.

a The flagship was found to have fuel problems at Charles de Gaulle.
b Passengers were forced to wait 12 hours for a leak to be repaired.
c The flagship was delayed in Dallas.
d The airline issued a formal apology to the passengers.
e Two A380s were held at Boston.

Radiotelephony – Listening

3a 3.12 Listen to the dialogue between pilot and ATC. Fill in the details in the space provided.

Problem
Actions
Position

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 continue or / to / to / we're trying / decide / come / back / whether ______________________________

2 going / dump / we're / like / have to / it looks / to / fuel ______________________________

3 completion / you / I'll give / vectors / to Filton / on

____

4 flaps / retract / below / the / 10% / can't / we

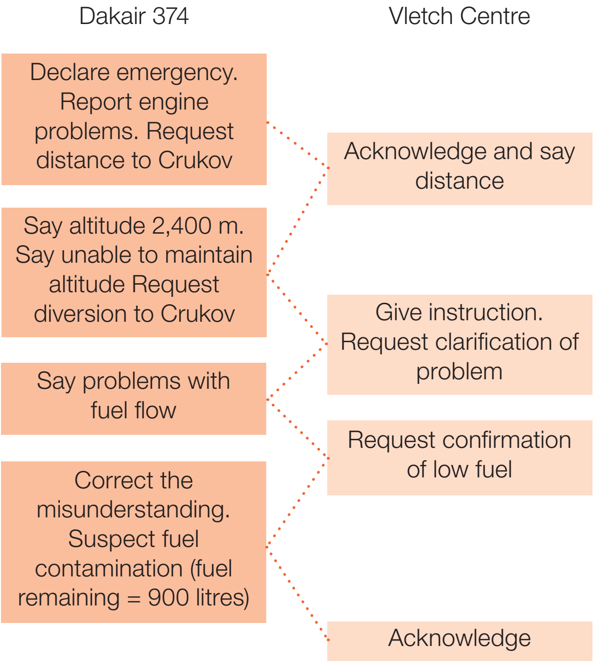
____

5 going / 30 / to / about / take / it's / minutes

____

Clarification

4a Work with a partner. Student A is Dakair 374, an Antonov 2 maintaining 2,600 m. Student B is an ATCO at Vletch Centre. Read the dialogue outline and decide what to say.


Dakair 374
Vletch Centre
Declare emergency. Report engine problems. Request distance to Crukov
Acknowledge and say distance
Say altitude 2,400 m. Say unable to maintain altitude Request diversion to Crukov
Give instruction. Request clarification of problem
Say problems with fuel flow
Request confirmation of low fuel
Correct the misunderstanding. Suspect fuel contamination (fuel remaining = 900 litres)
Acknowledge

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

leak (n) tank (n) pump (v) line (n) refuel (v)
unserviceable (adj) recurring (adj) block (v)

1 Not operative
2 To fill with fuel again
3 A large container for storing liquid or gas
4 A hole or crack in something which liquid comes out of
5 A tube which carries liquid
6 To move a liquid
7 Something which happens more than once
8 To prevent movement through something

5b Complete the maintenance report with the words from 5a.

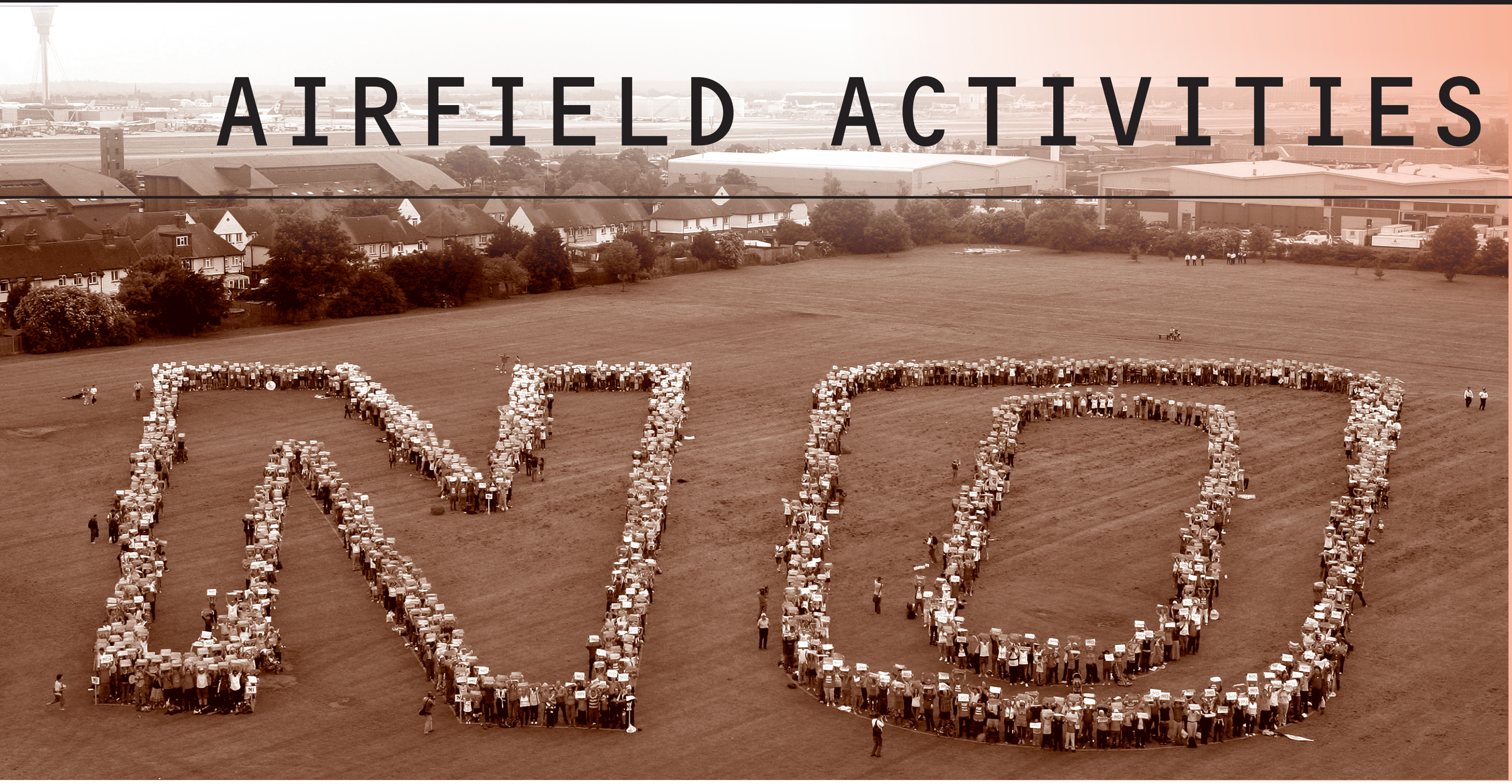
The crew were unable to fly the aircraft as it was (1) __________ due to a (2) __________ problem with the fuel system. This was the third time this had happened at this airfield. The (3) __________ was not (4) __________ as the fuel flowed without a problem and there was no sign of a (5) __________ as there was no damage. However on a closer examination of the underground (6) __________ we found signs of contamination. When aircraft were (7) __________ debris was picked up as the fuel was (8) __________ on board.

Discussion

6 Discuss the questions with a partner.

1 What factors need to be considered when estimating the amount of fuel needed?
2 Describe a fuel-related incident you know of or have had.
3 What type of factors can cause fuel-related incidents?
4 How have aircraft become more fuel efficient?
5 What will aircraft use for fuel in the future?

AIRFIELD ACTIVITIES



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

playing field formation demonstrators
residential area industrial warehouses

3.13 Now listen to the sample answer.

1b Answer the questions.

1 What are the people demonstrating about?
2 Who will see the sign?
3 At what time of day was the picture taken?
4 How long do you think the demonstrators stood in position for?
5 Where was the photograph taken from?

Plain English – Listening for gist

2a 3.14 Listen to an aviation news podcast about political activity at UK airports. Choose the best answers.

1 Why are people protesting at Heathrow?

a human rights
b environmental issues
c unemployment

2 How many incidents does the reporter describe?

a 1 b 2 c 3

Plain English – Listening for detail

2b 3.14 Listen again and decide if the sentences are true or false. Write *T* or *F*.

1 The human 'no' sign wasn't visible from the flight deck of passing aircraft.
2 If Heathrow expands, Sipson village will disappear.
3 Captain Granshaw believes communicating with the protesters will help.
4 Four protesters placed a large sign over the vertical stabilizer of an aircraft.
5 Departures at the airport were delayed.
6 A large group of environmental campaigners got airside at East Midlands.

Listening – Radiotelephony

3a 3.15 Listen to four dialogues between pilots and air-traffic control officers. Complete the table.

Activity	Location	Pilot / ATC action
1 Balloon		
2		Hold until clear to proceed
3	Western perimeter fence	
4 Paraglider		

Radiotelephony – Listening

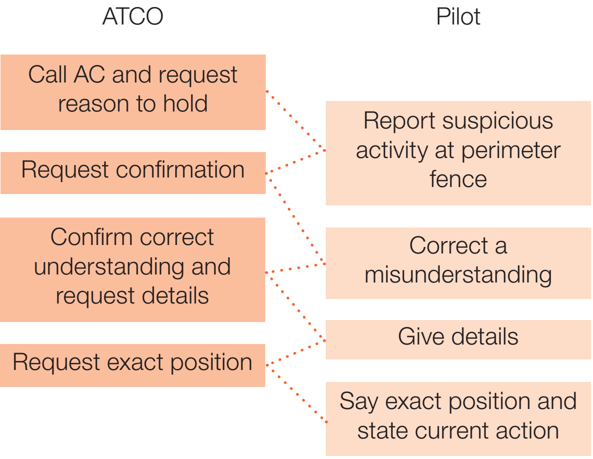
3b Match the beginnings with the endings to make sentences from the dialogue.

1 On landing we could see a balloon to
2 Request permission to hold until
3 Caution, work in progress ahead,
4 We saw a lot of people at
5 We've got someone on what we think is a paraglider

a the balloon has passed.
b north side of taxiway A.
c above the threshold of 22 right.
d the western perimeter fence.
e the south-east of the airfield.

Clarification

4a Work with a partner. Student A is a tower ATCO at Braela Airport. Student B is the pilot of a police helicopter, call sign Police 3, holding at 1,000 ft above the southern boundary of Braela Airport. Read the dialogue outline and decide what to say.



ATCO	Pilot
Call AC and request reason to hold	
	Report suspicious activity at perimeter fence
Request confirmation	
	Correct a misunderstanding
Confirm correct understanding and request details	
	Give details
Request exact position	
	Say exact position and state current action

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

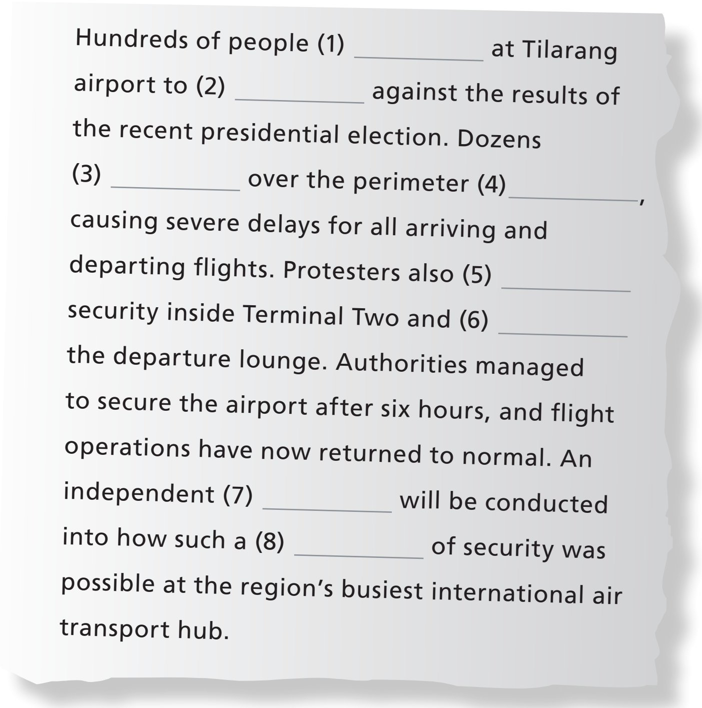
Vocabulary Check

5a Match the words in the box with the definitions.

protest (v) investigation (n) converge (v) breach (n)
break through (v) fencing (n) occupy (v) climb (v)

1 To come to the same point from different directions
2 A flat upright structure that surrounds an area
3 The process of finding out the facts about something
4 To publicly show opposition to something
5 A situation where someone gets into a place that is usually guarded
6 Move up or over something using hands and feet
7 To force your way through something that is stopping you from moving forward
8 To be in control of a place that you have entered

5b Complete the newspaper report with the words from 5a.



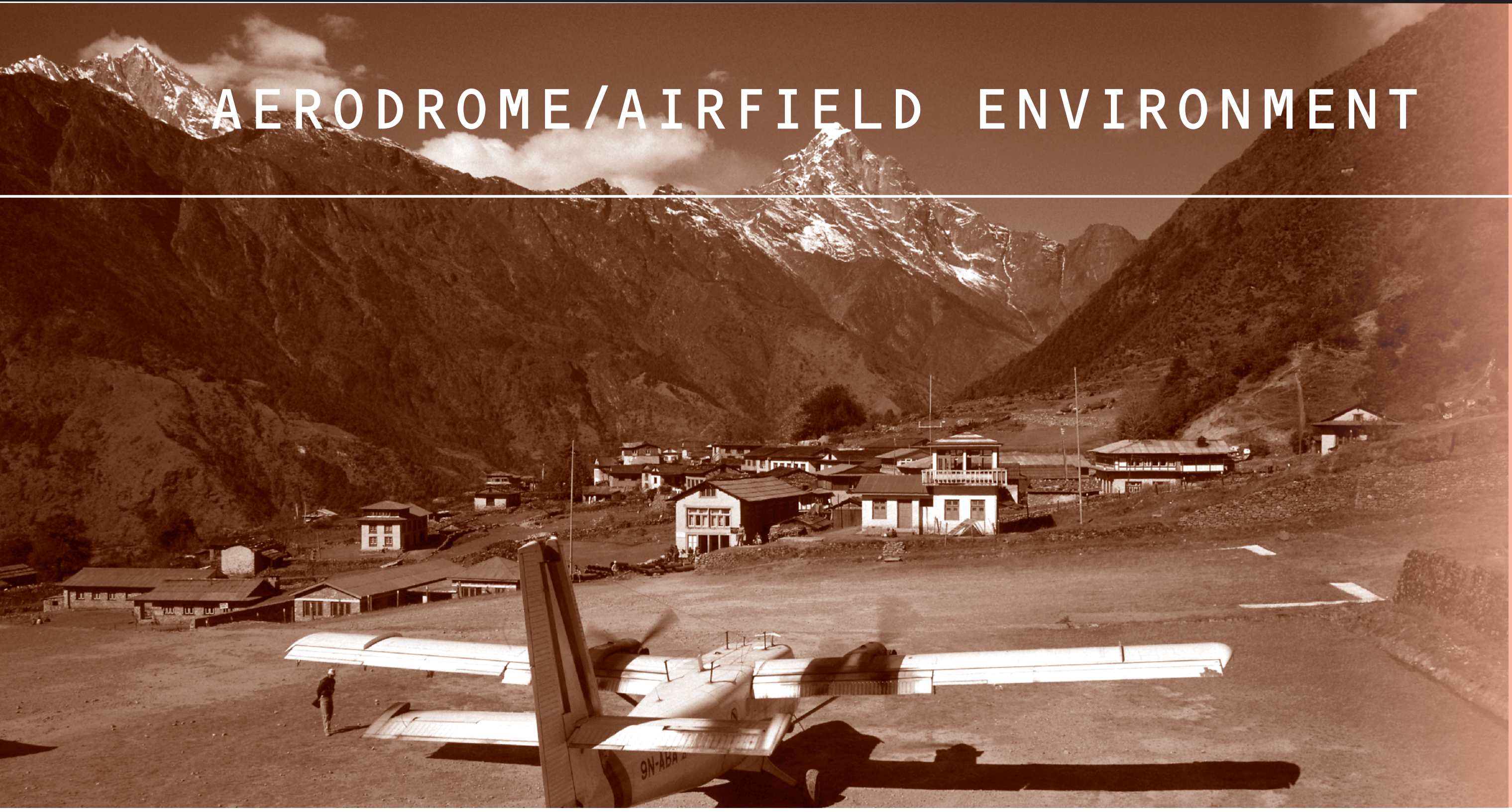
Hundreds of people (1) __________ at Tilarang airport to (2) __________ against the results of the recent presidential election. Dozens (3) __________ over the perimeter (4) __________, causing severe delays for all arriving and departing flights. Protesters also (5) __________ security inside Terminal Two and (6) __________ the departure lounge. Authorities managed to secure the airport after six hours, and flight operations have now returned to normal. An independent (7) __________ will be conducted into how such a (8) __________ of security was possible at the region's busiest international air transport hub.

Discussion

6 Discuss the questions with a partner.

1 Describe any recent airport expansion / improvement work you are familiar with.
2 How does aviation impact on the local environment and communities?
3 Describe any abnormal activities you have encountered at an airfield.
4 Describe any airspace violations or unidentified aircraft you have encountered at work.
5 How will the size of the aviation industry change over the next 20 years?

AERODROME/AIRFIELD ENVIRONMENT



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

strip houses mountain twin valley overshoot

3.19 Now listen to the sample answer.

1b Answer the questions.

1 Which region of the world is this airfield in?
2 What difficulties would a pilot face on landing and taking off?
3 What kind of condition is the runway in?
4 What do you think would happen if a pilot misjudged the approach?
5 Why are there no signs of activity?

Plain English – Listening for gist

2a 3.20 Listen to a description of a difficult approach. Who do you think the speaker is?

a pilot b controller c plane spotter

Plain English – Listening for detail

2b 3.20 Listen again and fill in the spaces.

1 The runway at TGU is only __________ long.
2 There used to be a small hill some __________ from the runway.
3 An airplane landing on runway 01 at TGU must circle inside the __________ .
4 After it circles the basin it has only __________ to line up.
5 The runway has a 'displaced threshold' leaving only __________ of useable landing runway.

Radiotelephony – Listening

3a 3.21 Listen to the communication between two pilots and ATC and underline the correct information

1 XT was not cleared *beyond / through / up to* the approach corridor.
2 XT said they would remain *north of the centreline / centre of the north line / south of the centreline.*
3 XT didn't need to cross behind the traffic because they *had already crossed / were diverting to another airport / needed to stay on the western side of the airport.*
4 XT was cleared to land on the H surface wind *260 degrees 8 knots / 260 degrees 18 knots / 216 degrees 8 knots.*

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 the extended / of / you / to / are / centreline / the / approach / too close ______________________

2 the routing / need / check / the convoy / to / of / we ______________________

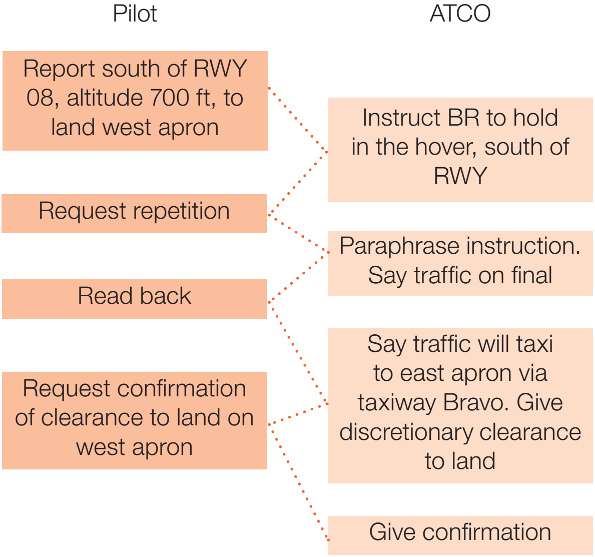
3 Western / stay / airport / the / the / of / side / will / we / on ______________________

4 cross / that we / lands / can / confirm / the aircraft / after ______________________

5 right / turn / hover / terminal / to / taxi / the / and ______________________

Clarification

4a Work with a partner. Student A is the pilot of Helicopter BR. Student B is an ATCO at Guadalan Tower. Read the dialogue outline and decide what to say.



Pilot

ATCO

Report south of RWY 08, altitude 700 ft, to land west apron

Instruct BR to hold in the hover, south of RWY

Request repetition

Paraphrase instruction. Say traffic on final

Read back

Say traffic will taxi to east apron via taxiway Bravo. Give discretionary clearance to land

Request confirmation of clearance to land on west apron

Give confirmation

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

extended (adj) marshaller (n) dust (n) basin (n)
overshoot (v) plateau (n) hover (v) corridor (n)

1 Member of ground staff whose job is to direct aircraft into parking positions
2 To stay in the same position in the air
3 Continuing in distance or direction
4 A large flat area of land that is high above sea level
5 A large area that is lower than the surrounding land
6 Small pieces of dry earth that are like powder
7 To accidentally fly past a target
8 The route aircraft must take through an area

5b Complete this pilot's description of his local airfield. Use the words from 5a.

There's a very narrow (1) __________ you have to fly through to reach the airfield. You have to pass over the (2) __________ which is always full of water running down from the mountains. Higher still you come to a (3) __________ where they've built the landing strip. I've seen folk who are so busy lining themselves up on the (4) __________ centreline they've forgotten how short the strip is and have (5) __________ the end of the runway. Obviously, once you've landed there's no (6) __________ telling you where to go. That's not a problem unless you've got one of the mountain rescue helicopters (7) __________ over the strip. You have to wait for the (8) __________ to settle before you can see anything. Not that there's too much to see!

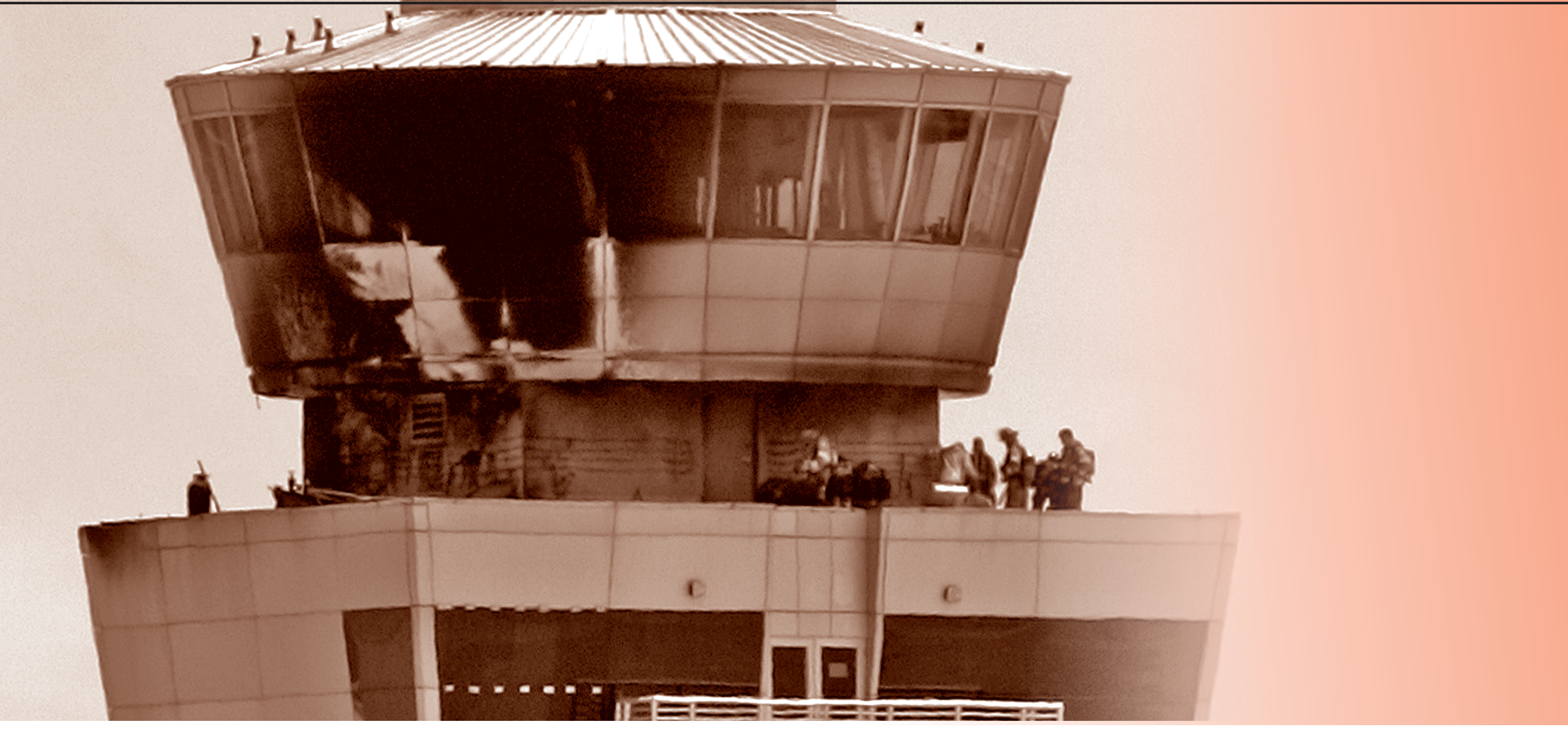
Discussion

6 Discuss the questions with a partner.

1 Describe a difficult landing strip you know of.
2 What it is that makes landings and take-offs difficult?
3 What technology exists to help assist landings and take-offs?
4 What is your favourite landing strip? Why?
5 Do you think the number of small remote airstrips will increase or decrease in the future? Why?

Unit 29

AIRFIELD AND NAVIGATION EQUIPMENT FAILURE



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

extinguish fire damage blackened explosion evacuate fire fighting

3.22 Now listen to the sample answer.

1b Answer the questions.

1 What could cause a fire like this?
2 What effect would it have on airport operations?
3 When do you think the picture was taken?
4 How long will it take to repair the damage?
5 How will the airport operator manage the situation while the tower is unserviceable?

Plain English – Listening for gist

2a 3.23 Listen to a safety podcast and choose the best option to complete the summary.

On final approach, the flight experienced problems with *speed / instruments / a navigation aid / poor visibility.*

Plain English – Listening for detail

2b 3.23 Listen again and decide if the sentences are true or false. Write *T* or *F.*

1 It was a dark night.
2 Events happened a lot faster than expected.
3 The captain felt uneasy about the situation.
4 The pilots couldn't identify any visual references.
5 A crosscheck confirmed their position.

Radiotelephony – Listening

3a 3.24 Listen to four dialogues between pilots and air-traffic control officers. Match one of the statements with each of the dialogues.

a An aircraft confirms lighting failure while waiting for departure.
b An aircraft reports a runway excursion.
c An area controller reports equipment malfunction.
d ATC believes there may have been a runway incursion.

Radiotelephony – Plain English

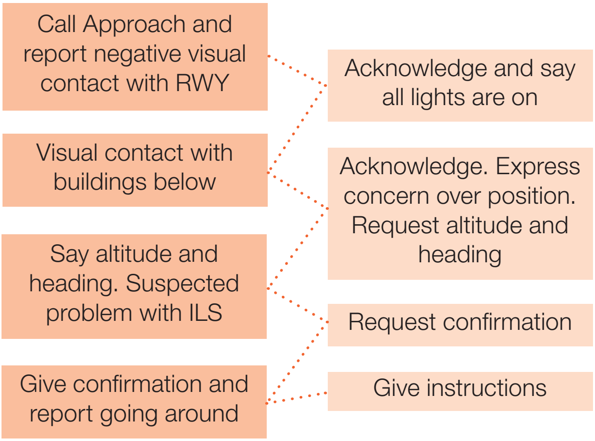
3b Match the beginnings (1–5) with the endings (a–e) to make sentences from the dialogues.

1 All aircraft return to
2 I'm getting a radar indication
3 Radar indicates it is behind you now,
4 We can't see the runway lights at all
5 You've completely lost the

a beyond the touchdown zone.
b runway edge and centre line lighting.
c previously-assigned headings and levels.
d but it may be a erroneous return.
e there's another aircraft on your runway.

Clarification

4a Work with a partner. Student A is the captain of a narrow body passenger jet, call sign Southern 636, on approach to RWY 06 at Krystena International Airport. Student B is an approach ATCO. Read the dialogue outline and decide what to say.



Southern 636	ATCO
Call Approach and report negative visual contact with RWY	
	Acknowledge and say all lights are on
Visual contact with buildings below	
	Acknowledge. Express concern over position. Request altitude and heading
Say altitude and heading. Suspected problem with ILS	
	Request confirmation
Give confirmation and report going around	
	Give instructions

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

lose (v) fail (v) ignore (v) unserviceable (adj)
erroneous (adj) faulty (adj) trust (v) concentrate (v)

1 Not operative
2 To give all your attention to the thing you are doing
3 To not have something any longer
4 To be confident that someone or something is reliable
5 Not working correctly
6 To stop working correctly
7 To not consider something, or not let it influence you
8 Not correct

5b Complete the article with the words from 5a.

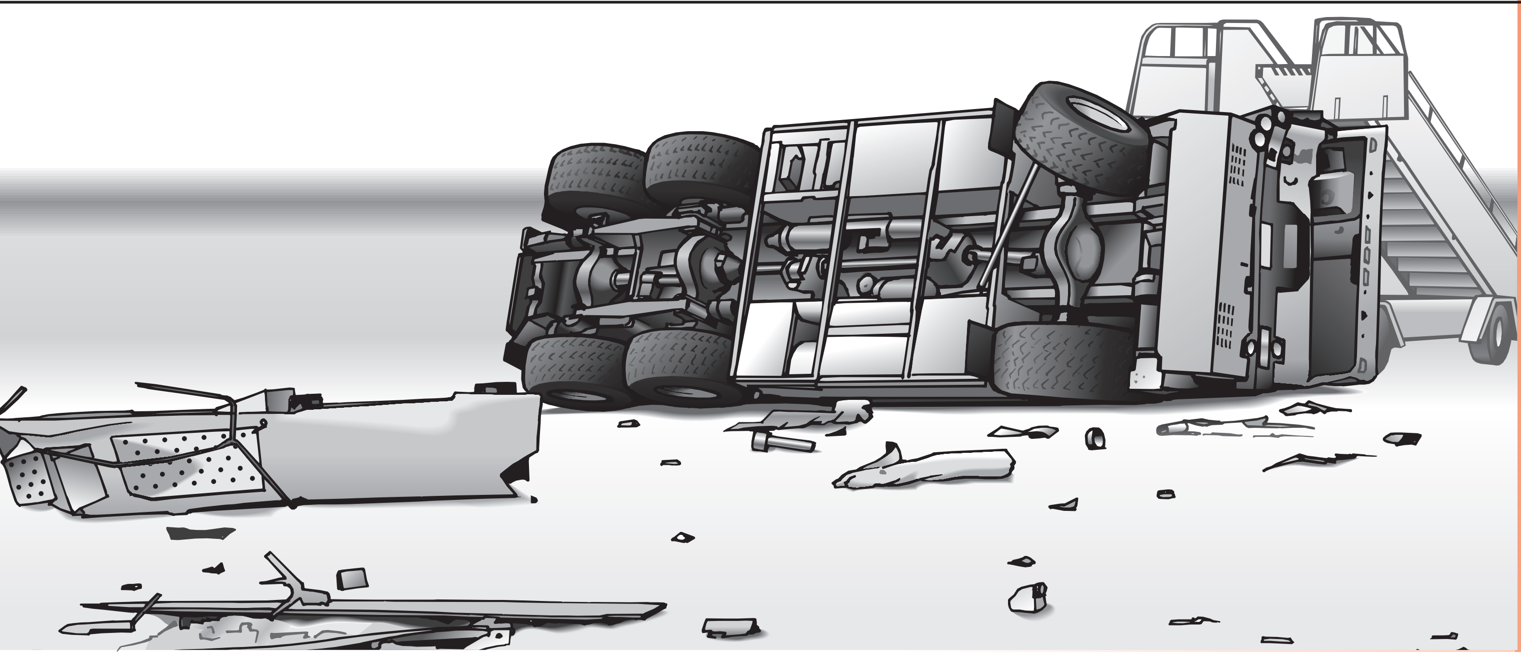
If you have GPS equipment, or you are flying with a glass cockpit, you should never (1) __________ your back-up navaids for positional awareness. That doesn't mean you can't (2) __________ your technology. It's just that if your systems are (3) __________ , or if you do (4) __________ your systems completely, you need to be prepared. In fact, it's important to remember that all instruments can provide (5) __________ readings. In my 10,000 hours, I've had just about every piece of equipment imaginable (6) __________ in an aircraft. And it may be that ATC equipment may become (7) __________ . Remember, keep your basic flying skills current and (8) __________ on flying using raw data from your nav equipment from time to time.

Discussion

6 Discuss the questions with a partner.

1 Which navigation aids do you use in your job?
2 What problems can occur when using the navigation aids?
3 Have you ever had navigation equipment failure?
4 How have navigation and ATC systems improved?
5 What technology do you expect to see in the future?

GROUND SERVICES



Describe the picture

1a Describe what you can see in the picture. Use the words in the box.

bent	dent	smashed	debris	twisted	force

3.28 Now listen to the sample answer.

1b Answer the questions.

1 Why do you think this happened?
2 What equipment will be needed to clear the area?
3 How long will it take to clear the area?
4 What effect will the incident have on airport operations?
5 Who will be involved in an investigation?

Plain English – Listening for gist

2a 3.29 Listen to a news report about a runway incursion. The questions below are missing from the interview. Match each question (a–e) to the correct place (1–5) in the recording.

a What was he doing there in the first place?
b What happened to the driver?
c So did the vehicle actually enter the runway? Aren't there procedures to stop this happening?
d Who was the first to realize what was happening?
e How serious was this?

Plain English – Listening for detail

2b 3.29 Listen again and complete the sentences.

1 An aircraft nearly hit a ______________________________
2 The incident happened shortly after the flight was
____
3 The driver failed to follow ______________________________
4 The incident happened at the intersection of
____
5 An alarm sounded ______________________________
6 The driver's radio was ______________________________

Radiotelephony – Listening

3a 3.30 Listen to the communication between pilots and an ATCO. Correct the three mistakes in the summary.

Korean 257 think they may have hit a vehicle near he taxiway. ATCO ask the following United 914 to look and see if they can see anything. Korean 257 have a good view but do not see anything wrong. ATCO ask a fire tender to check. They want Korean 257 to cut his engines to idle. Korean 257 complies.

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 follow / to / you / get / Korean Air / Yankee / when

____

2 Korean Air? / do / near / anything / see / you

____

3 the / side / we're / at / looking / right

____

4 his / maybe / engine / hit / it / outboard

____

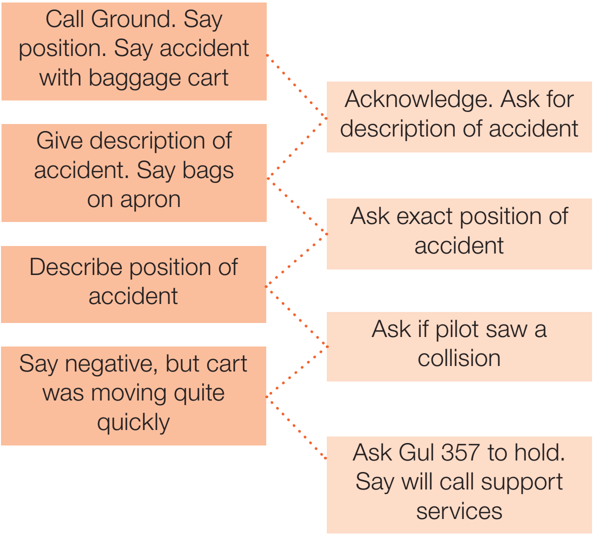
5 a / make / they'll / inspection / visual

____

Clarification

4a Work with a partner. Student A is Gul 357. Student B is a ground ATCO. Read the dialogue outline and decide what to say.

Gul 357 ATCO



Call Ground. Say position. Say accident with baggage cart

Acknowledge. Ask for description of accident

Give description of accident. Say bags on apron

Ask exact position of accident

Describe position of accident

Ask if pilot saw a collision

Say negative, but cart was moving quite quickly

Ask Gul 357 to hold. Say will call support services

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

swerve (v) axle (n) digger (n) intersection (n)
construction (n) park (v) cut (v) idle (adj)

1 Machine for making large holes and moving earth
2 Point at which two lines cross each other
3 When an engine is on but not delivering power to move the vehicle or aircraft
4 To leave a vehicle or aircraft in a place where no one is using it
5 The act of putting together or building something
6 Suddenly change direction
7 To switch off
8 Shaft on which wheels are attached

5b Complete the vehicle accident report with the words from 5a.

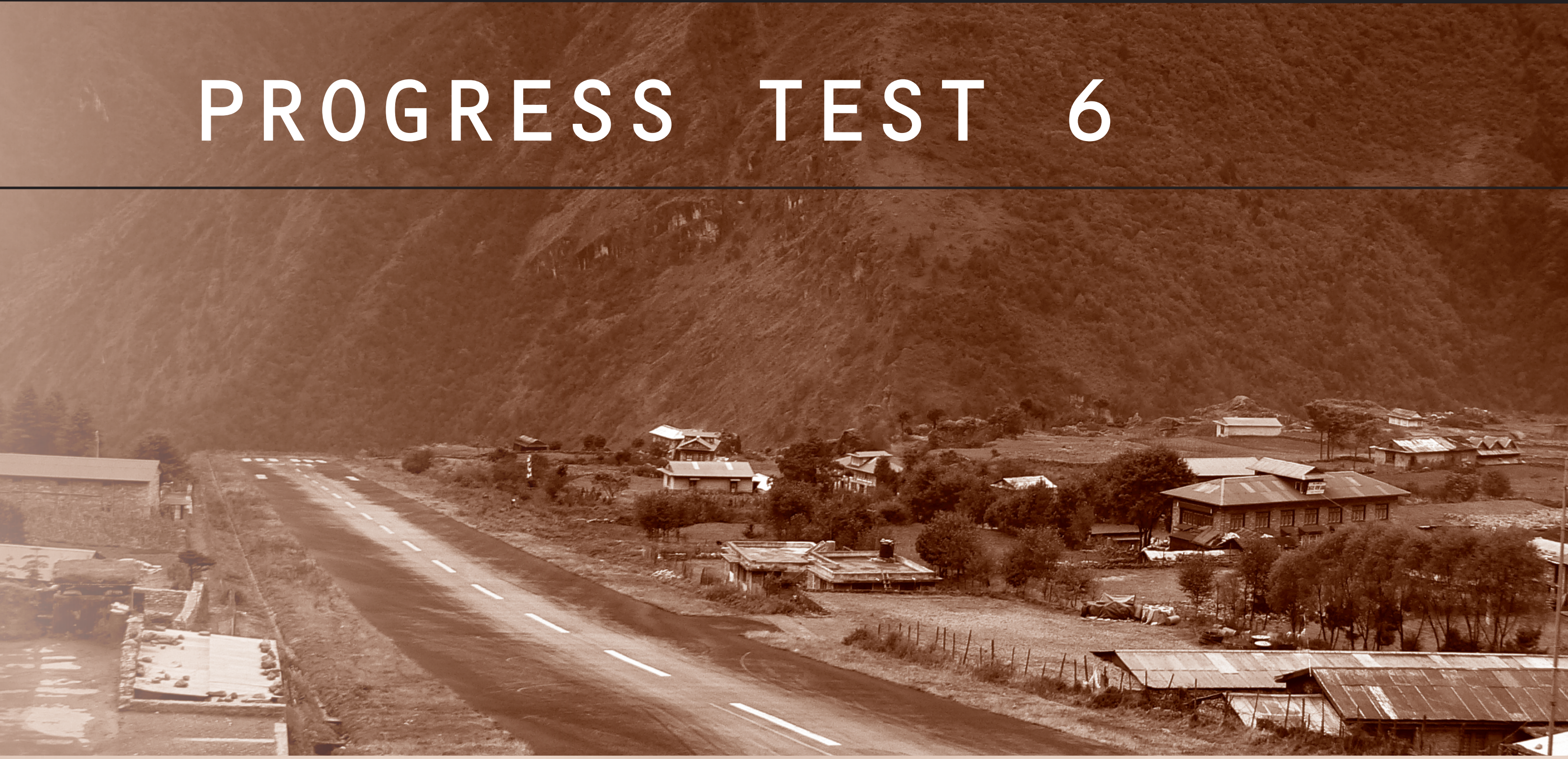
A large (1) __________ drove towards the apron to continue the (2) __________ work for the new gate. At the (3) __________ of taxiway B and A it (4) __________ to avoid an unlit vehicle (5) __________ next to Stand 4. The vehicle damaged its front (6) __________ and had to be placed on a transporter. All waiting aircraft were instructed to (7) __________ their engines even if they were already at (8) __________ .

Discussion

6 Discuss the questions with a partner.

1 What type of vehicles are used in aviation?
2 Should all drivers be required to have ICAO Level 4?
3 Should all ground personnel be required to have ICAO Level 4?
4 What is the role of the dispatcher?
5 How do you think ground services will change in the future?

PROGRESS TEST 6



Describe the picture

1a Describe what you can see in the picture.

1b Answer the questions.

1 What country could this airfield be in?
2 What difficulties would a pilot face on landing and taking off?
3 Have you ever flown into an airfield like this? What was similar?
4 What do you think would happen if a pilot misjudged the approach?
5 Why do you think nothing is happening?

3.31 Now listen to the sample answer.

Plain English – Listening for gist

2a 3.32 Listen to four replies to an accident investigation officer's questions after an incident involving a shuttle bus. Match the people with the interviews.

captain bus passenger bus driver first officer

Interview a ______
Interview b ______
Interview c ______
Interview d ______

Plain English – Listening for detail

2b 3.32 Listen again and match the information with the interview(s).

1 I stopped at the correct place. ______
2 I heard someone speaking on the radio. ______
3 I braked hard. ______
4 I shouted a warning. ______
5 The outside lights were on. ______
6 I hurt myself. ______

Radiotelephony – Listening

3a 3.33 Listen to three dialogues. Match the call signs with the statements.

Courier 254 Rotary 42 Starjet 872

1 The aircraft is quickly losing fuel. ______
2 The fuel supply is getting close to critical. ______
3 The pilot performs an off-field landing. ______
4 Fuel flow to the starboard engine is weak. ______
5 The pilot has made contact with his company. ______
6 Fuel tanks are showing significantly different quantities. ______
7 The crew were waiting for the weather to improve. ______

Radiotelephony – Plain English

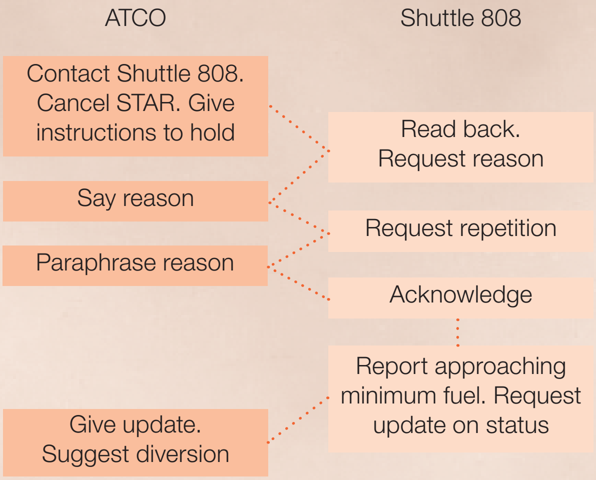
3b Match the beginnings (1–5) with the endings (a–e) to make phrases from the dialogue.

1 My fuel gauge is reading empty and
2 Making a full power landing
3 We set down on the
4 I have spoken with dispatch
5 We have low fuel pressure and

a an indication of fuel imbalance.
b on the playing field.
c and am awaiting instructions.
d the auxiliary gauge is reading low.
e playing field and shut down.

Clarification

4a Work with a partner. Student A is pilot of Shuttle 808 on a standard instrument approach to Nan Tak. Student B is an ATCO at Nan Tak approach. Read the dialogue outline and decide what to say.


ATCO
Shuttle 808
Contact Shuttle 808. Cancel STAR. Give instructions to hold
Read back. Request reason
Say reason
Request repetition
Paraphrase reason
Acknowledge
Report approaching minimum fuel. Request update on status
Give update. Suggest diversion

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

recurring (adj) tank (n) converge (v) overshoot (v)
hover (v) faulty (adj) unidentified (adj) catering (adj)

1 To remain stationary in the air
2 Not working properly
3 Unknown
4 A large container for storing liquid or gas
5 Describing food services
6 To come from different directions to meet the same point
7 Something which happens many times or again
8 To accidentally fly past a target

5b Complete the sentences with the words from 5a.

1 Only the controller's quick thinking stopped the __________ aircraft from colliding.

2 There was a problem with the food so the __________ trucks were delayed.

3 Radar showed an __________ aircraft in the flight corridor.

4 The mechanic couldn't understand why the fault kept __________.

5 The fuel __________ was leaking.

6 The poor visibility caused the light aircraft to __________ the runway.

7 The rescue helicopter __________ above the survivors.

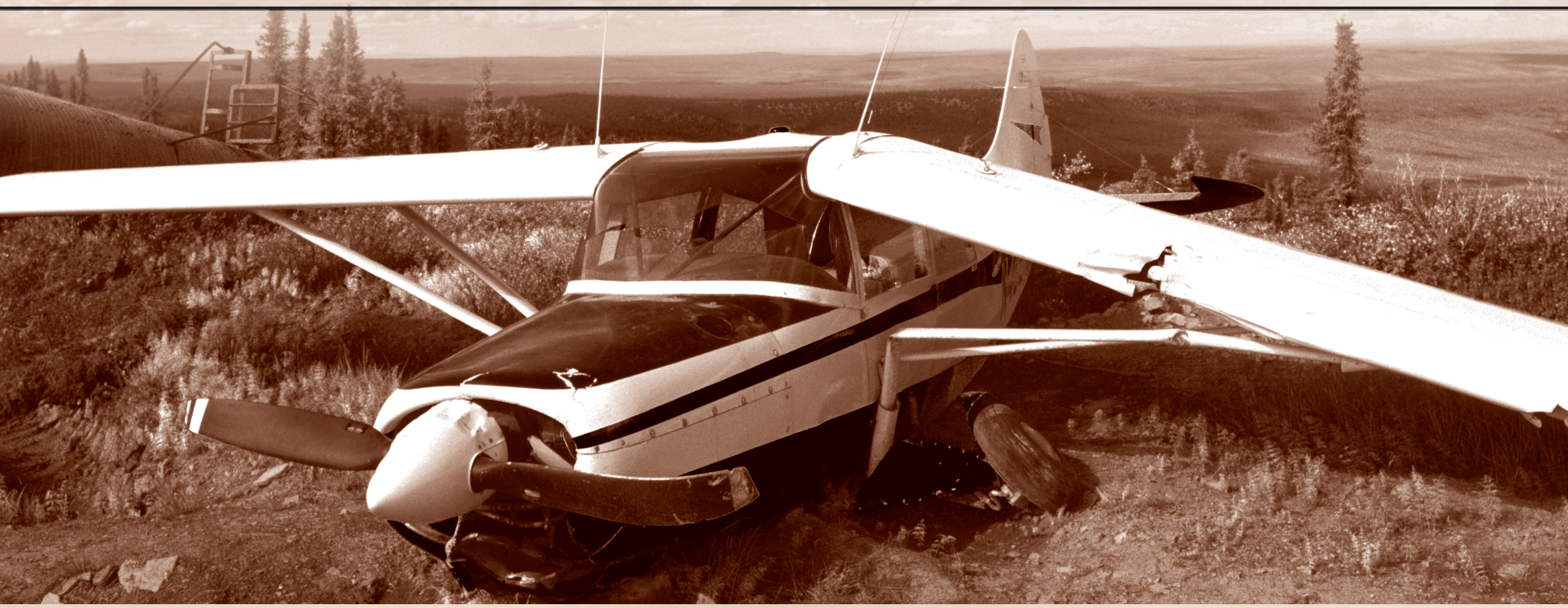
8 The __________ switch kept turning off by itself.

Discussion

6 Discuss the questions with a partner.

1 What can be done to prevent fuel problems?
2 What impact does aviation have on the environment?
3 What factors change when an airstrip / airport is smaller / larger?
4 What can go wrong with airport technology?
5 Describe a taxiway incident involving a vehicle that you know of.

REVIEW TEST 1



Describe the picture

1a Describe what you can see in the picture.

1b Answer the questions.

1 Describe the photographer's position in relation to the aircraft.
2 Where do you think the picture was taken?
3 Do you think any parts of the aircraft are useable?
4 What could have caused the accident?
5 What do you think will happen next?

3.36 Now listen to the sample answer.

Plain English – Listening for gist

2a 3.37 Listen to a conversation between three pilots. Answer the questions.

1 What are they talking about?
2 What sort of airline do they work for?
3 Where does the conversation take place?

Plain English – Listening for detail

2b 3.37 Listen again and answer the questions.

1 How long did the pilot fly today?
2 Why is the pilot tired?
3 How often do long-haul pilots have breaks?
4 In Canada, what is the maximum number of flight hours in a week?
5 What is the European Aviation Safety Agency developing?
6 What do the pilots think of the hotel?

Radiotelephony – Listening

3a 3.38 Listen to the dialogue between pilots and a tower ATCO. Underline the correct information.

1 Tiger 236 rejects take-off due to low *engine power / oil pressure warning.*
2 Tiger 236 would like to *try and depart again / return to the apron.*
3 I-45YC is instructed to hold while *Tiger 236 / a vehicle* vacates the runway.
4 Albion 291 *moves into the path of a taxiing aircraft / collides with another aircraft.*
5 The ATCO warns OO-G of *slippery taxiway surfaces / poor visibility.*
6 I-45YC reports *a small group of animals / a group of small animals* on the field.
7 Albion 291 would like *to taxi under own power / assistance with taxiing.*
8 *A passenger on Zoom 464 has / A group of passengers on Zoom 464 have* lost some travel documents.
9 The ATCO instructs Zoom 464 to *proceed to stand 23 / wait until a parking position becomes available.*

Radiotelephony – Plain English

3b Rearrange the words to make phrases from the dialogue.

1 indication / a / had / we / oil / low / pressure

____

2 right / us / him / watched / front / skid / we / out / in / of ______________________________

3 braking / reports / we / of / have / poor / action

____

4 rodents / running / around / group / of / there's / a

____

5 issue / to / going / is / be / an / steering

____

6 you / parking / to / need / a / position / find / we'll / for ______________________________

Clarification

4a Work with a partner. Student A is ATCO. Student B is pilot of VH-GHD, a light aircraft maintaining 4,000 ft. Read the dialogue outline and decide what to say.

ATCO	VH-GHD
Report unknown traffic (10 o' clock, 6 miles, height 5,000 ft, slow moving)	
	Acknowledge. Say looking out
Suggest a heading if not sighted	
	Say balloon in sight, 10 o'clock, 1,000 ft above
Request further information	
	Give information
Ask if the balloon is manned	
	Say balloon appears unmanned

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

potential (n) deviate (v) disruption (n) regulation (n)
wrap (v) anticipate (v) touch (v) melt (v)

1 A situation when something cannot continue as normal because of a problem
2 To cover something
3 Control of an activity or process by official rules
4 To think that something will probably happen
5 Possible or likely in the future
6 To make physical contact
7 To change a solid substance into a liquid
8 To do something different to what is expected

5b Complete the sentences with the words from 5a.

1 The __________ prevent night flying over the city.

2 We __________ an increase in traffic during the peak time.

3 All fragile cargo must be __________ very carefully.

4 The wing tip was __________ the hangar door.

5 The sun __________ the ice.

6 The quick-thinking controller prevented a __________ disaster.

7 Despite loss of nose gear the pilot didn't __________ from the centreline.

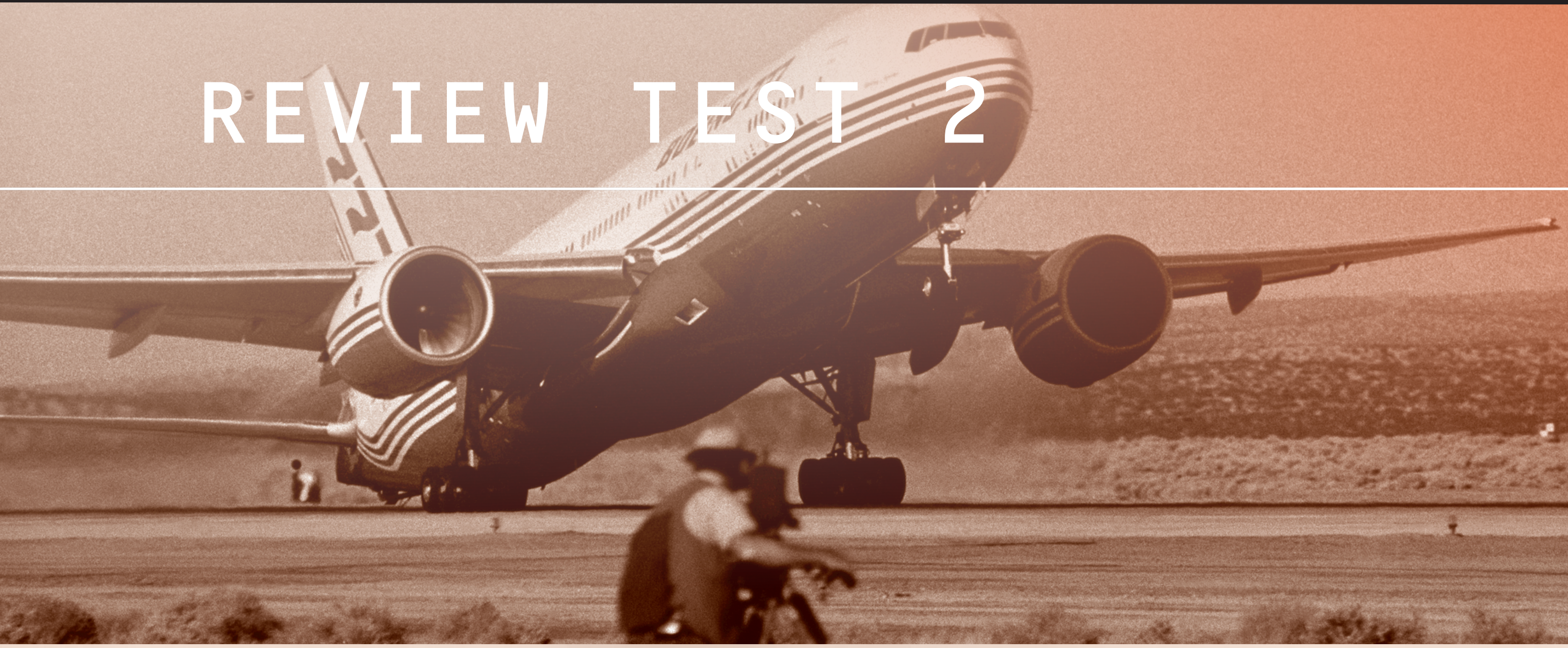
8 The alarm sounded at the busiest time causing maximum __________.

Discussion

6 Discuss the questions with a partner.

1 How has the job of a pilot changed over the last 20 years?
2 How will the job of an air-traffic controller change in the future?
3 Which technological developments have had the biggest impact on the aviation industry in the last ten years?
4 What are the biggest challenges facing the aviation industry at the moment?
5 How do you think the aviation community will deal with increasing concerns about the environment?

REVIEW TEST 2



Describe the picture

1a Describe what you can see in the picture.

1b Answer the questions.

1 Describe the man's position in relation to the aircraft?
2 Where do you think the picture was taken?
3 What will happen next?
4 Why is public access to airfields restricted?
5 What permission would this man need?

3.39 Now listen to the sample answer.

Plain English – Listening for gist

2a 3.40 Listen to a podcast about staff shortage in the air-traffic control system. Tick (✓) the things that are mentioned.

☐ accidents and incidents
☐ controller health
☐ growth in the industry
☐ new procedures and equipment
☐ recruitment and training
☐ retirement

Plain English – Listening for detail

2b 3.40 Listen again and decide if the sentences are true or false. Write *T* or *F*.

1 Staff shortage has led to a reduction in air-traffic services in Australia.
2 There is bad feeling between the ATC union and the employer in Australia.
3 In Europe the number of controllers required will double in the future.
4 Airport expansion has recently created staffing issues in Delhi.
5 In South Africa, the offer of a pay rise is encouraging controllers to stay.
6 In Britain, human resource management at the ANSP hasn't changed.
7 Controllers and managers don't see staffing levels in the same way.
8 Potential trainees see air-traffic control as an attractive career.
9 The majority of trainees successfully complete their training.
10 Almost 7,500 controllers in the US will retire within 10 years.

Radiotelephony – Listening

3a 3.41 Listen to the dialogue between pilots and an approach ATCO. Answer the questions.

1 What meteorological conditions does D-23GH encounter?
2 What's wrong with the elevator?
3 What conditions does Rabbit 487 encounter?
4 What does the controller do to help Rabbit 487?
5 What is the problem with the captain of A6-TYC?
6 Why is Previair 234 instructed to hold?
7 What is the updated status of D-23GH?
8 Where will medical services be waiting for A6-TYC? Why?
9 What problem does the pilot of Estrella 525 report?
10 Where is the suspected source of the problem?

Radiotelephony – Plain English

3b 3.41 Match the beginnings (1–6) with the endings (a–f) to make phrases from the dialogue.

1 We've got a nose-down
2 We're experiencing severe
3 The Captain is not well
4 Aircraft behind you
5 We've regained full
6 An ambulance will meet

a requires priority handling.
b at all with suspected stroke.
c chop due vortex from the heavy.
d you on the south apron.
e control of the aircraft.
f pitch due stuck elevator.

Clarification

4a Work with a partner. Student A is pilot of Fahed 141, cruising at FL410. Student B is an ATCO at Afarsha area control centre. Read the dialogue outline and decide what to say.

Fahed 141	Afarsha Centre
Declare emergency due fuel problems. Request descent and landing	Acknowledge. Give instructions
Read back	Request details of problem
Say suspected leak and imbalance of 2,000 lbs	Request confirmation of fuel leak
Confirm suspected leak. Say engine 1 shut down	Acknowledge. Say services are standing by

4b Role play the dialogue, then change roles and do it again. Check against the model dialogue in the Answer Key.

Vocabulary Check

5a Match the words in the box with the definitions.

external (adj) overpower (v) leak (v) rescue (n)
strobe (n) charge (v) pump (v) block (v)

1 Liquid or gas coming out of a container through a hole or crack
2 The act of saving somebody from danger
3 To put electricity into something
4 To defeat someone by having greater strength
5 A strong electric light that flashes very quickly
6 To prevent movement through something
7 Outside or connected to the outside
8 To move a liquid or air

5b Complete the sentences with the words from 5a.

1 The passengers managed to ___________ the hijacker.
2 The fuel is ___________ at high pressure.
3 The hydraulic fluid was ___________ , making controlling the aircraft very difficult.
4 The crew ditched near a ship to increase their chances of ___________.
5 The new generator successfully ___________ the batteries.
6 The oxygen could not get through because the tube was ___________.
7 Even though it was night time and foggy the ___________ on the aircraft could still be seen.
8 The low temperature meant all ___________ hatches were frozen solid.

Discussion

6 Discuss the questions with a partner.

1 How has the job of an air-traffic controller changed over the last 20 years?
2 How will the job of a pilot change in the future?
3 What technological changes do you think the aviation industry will see in the next ten years?
4 How have passengers changed in the last few years?
5 What training needs do today's aviation professionals have?

ANSWER KEY

Unit 1 Near miss

2a c
2b 1 heading for 2 800 3 controllers 4 changed
3a 1 DF211 2 YG343 3 DF211 4 YG343 5 DF211
6 YG343 7 YG343 8 YG343
3b 1 Incorrect readback. I say again. Squawk 4113.
2 Avoiding action. Immediately turn hard right heading 270 due traffic.
3 We have some injuries.
4 I'm sorry. What is your problem?
5 We have medical problems, people on board are hurt.
4b Model answer:
P Control. CS-FHG. Time now 36. Position 26 miles south-east of FLORA, maintaining altitude 7,000 ft. Regional QNH 1007. At time 34 we had an AIRPROX.
C C-HG. Confirm AIRPROX.
P Affirm. Near miss with an aircraft approximately half a mile, 600 ft below, passing left to right. C-HG.
C C-HG. Roger. Did you recognize the type?
P It was a high-wing single piston engine aircraft. Possibly a Cessna 172. C-HG.
C C-HG. Roger. Any markings?
P Affirm. Yellow wings and stabilizer, blue fuselage. C-HG.
C C-HG. Roger. Please file a full written report to ATS on arrival at Grageny.
5a 1 airprox 2 distance 3 potential 4 abort
5 deviate 6 close 7 collision 8 risk
5b 1 risk 2 potential 3 distance 4 deviate
5 airprox 6 collision 7 close 8 abort

Unit 2 Special flights

2a ✓ communications ✓ approach speeds
✓ touch down zones
2b 1 F 2 T 3 F 4 T 5 T
3a 1 D 2 E 3 A 4 F 5 H 6 C
7 G 8 B
3b 1 I can see a blue and white high-wing east of Benejov.
2 Keep your gear up until west of Benejov.
3 Turn left and get in line behind the Ikarus.
4 You've flown away from the railway tracks.
5 The Staggerwing up ahead is going to be too slow for you.
4b Model answer:
C The green and white twin-engine amphibian. Rock your wings.
Say type.
P Grumman Mallard.
C Grumman. Can you see the red bi-wing, 11 o'clock, half a mile?
P Affirm.
C Grumman. Follow the yellow bi-wing.
P Negative. Unable due speed.
C Grumman. Roger. Make a left turn 180°.
5a 1 low-wing 2 amphibious 3 high-wing
4 floatplane 5 routine 6 air show
7 twin-engine 8 bi-plane
5b 1 twin-engine 2 low-wing 3 amphibious
4 bi-plane 5 routines 6 air shows
7 floatplane 8 high-wing

Unit 3 VIP flights

2a b
2b ✓ congestion anxiety ✓ controller stress
✓ poor maintenance ✓ mid-air panic
3a 1 T 2 F 3 T 4 T 5 T 6 F
3b 1 Confirm we have to hold at VATON?
2 Understood but our NOTAM says scheduled air carriers AND cargo flights are excepted.
3 Unfortunately we did not get that information before leaving JFK.
4 We will have to take our alternate, Gatwick, if we cannot get a clearance.
5 Airforce One is on ILS now.
4b Model answer:
PNF Omsk radar have told us to expect a delay.
PF Are you sure? We were told no delay expected.
PNF It's due to VIP movement.
PF But our NOTAM says no delays.
PNF There was a short notice amendment for security reasons.
PF Understood. But we didn't get that before we left, and we're approaching minimum fuel.
PNF Kirsk is an alternate.
PF If we don't get clearance in the next 10 minutes we'll go for Kirsk.
5a 1 officials 2 facilities 3 scheduled 4 amendment
5 domestic 6 disruption 7 panic 8 priority
5b 1 amendment 2 panic 3 priority 4 disruption
5 domestic 6 scheduled 7 facilities 8 officials

Unit 4 Delays

2a 1 CBs (Madrid) 2 personnel shortage (Karlsruhe)
3 construction (Pisa) 4 thunderstorms and rain (Vienna)
5 military activity (Romania) 6 aerodrome capacity (Istanbul)
2b 1 Istanbul 2 Cyprus 3 Cyprus 4 Vienna
5 Israel 6 Madrid
3a 1 d 2 e 3 a 4 b 5 – 6 c
3b 1 We have a disabled aircraft on runway.
2 Remain outside controlled airspace due sector saturation.
3 There is a spillage on the ramp behind you.
4 Can we have lower speed due to chop at this level?
5 Do you have an estimate for an improvement in the weather?
4b Model answer:
P Polomir Approach. Transtar 332. Descending FL110. Information Delta.
C Transtar 332. Polomir Approach. Roger. Hold at Kinsk FL110.

Anticipate 20-minute delay. Expect further clearance at 32.

P Hold at Kinsk FL110. What is the reason for the delay? Transtar 332.

C Transtar 332. Reduced visibility and heavy traffic on the ground at Polomir.

P Say again. Transtar 332.

C Transtar 332. Ground movements are slow due thick fog.

P Roger. Transtar 332.

5a 1 issue 2 exercise 3 disable 4 saturation
5 regulation 6 work 7 spillage 8 removal

5b 1 exercises 2 work 3 regulations 4 saturation
5 removal 6 issues 7 spillage 8 disabled

Unit 5 Belly-landings

2a Because of a lack of time due to the captain changing his mind over whether they should land or not.

2b c, f, d, b, e, a

3a 1 right main gear 2 04 3 2,000 feet
4 to confirm all wheels were down
5 All wheels appeared to be down 6 minimum fuel

3b 1 PHG3002 has right main gear unsafe indication.
2 Request low pass to confirm wheels are down.
3 We will level at 500 ft.
4 Localizer established runway zero four at distance eight nautical miles.
5 All wheels appear down.

4b Model answer:

P Tower. Flyer 794. We have an unsafe gear indication.

C Flyer 794. Roger. Report intentions.

P Request low pass runway 23. Flyer 794.

C Flyer 794. Cleared low pass runway 23 not below 500 ft.

P Cleared low pass runway 23 not below 500 ft. Flyer 794.

C Flyer 794. Main gear appears down but nose wheel appears retracted.

P Roger. All wheels appear down. Thank you. Flyer 794.

C Flyer 794. Negative. Main gear appears down but nose wheel appears retracted. I say again. Nose wheel appears up.

5a 1 skid 2 circuit 3 indication 4 lower
5 bent 6 collapse 7 appear 8 undercarriage

5b 1 indication 2 undercarriage 3 lowered 4 circuit
5 appeared 6 collapsed 7 skidded 8 bent

Progress test 1

2a b

2b 1 Where the incident took place
2 The number of people involved
3 The number of aircraft each controller monitors
4 The number of years that Yuri has been a controller
5 The number of metres separating the planes
6 The number of seconds that the planes were away from colliding

3a a 4 b 2 c 6 d 3 e 1 f 5

3b 1 b 2 d 3 e 4 c 5 a

4b Model answer:

P Tower, Sprinter 512. Request taxi.

C Sprinter 512. Hold position.

P Holding. Do you know how long we will have to wait? Sprinter 512.

C Sprinter 512. We don't know yet. Delay caused by unknown object on taxiway F. We're investigating now.

P Roger, Sprinter 512.

C Sprinter 512. We have reports of debris on taxiway F. Expect taxi at time 23. Time now 08.

P Say again the delay. Sprinter 512.

C Sprinter 512. Expect a 15-minute delay while it's cleared up.

5a 1 scheduled 2 amendment 3 disable 4 bent
5 collapse 6 domestic 7 indication 8 spill

5b 1 spilt 2 amendments 3 collapse 4 scheduled
5 domestic 6 indication 7 bent 8 disabled

Unit 6 Birds

2a 1 Whitsand International Airport
2 a mobile bird detection radar system
3 air-traffic controllers

2b 1 F 2 T 3 F 4 T 5 T 6 T

3a c, e, f, a, b, d

3b 1 I think we had an impact with the nose gear.
2 I tried recycling the gear, but we still have a red light.
3 We see what looks like a loose cable or hose on your nose gear.
4 I believe we will have problems with the steering on landing.
5 Be aware that we could come off the runway to the left.

4b Model answer:

P Nezabad tower. Arrow 545 downwind. We've had a birdstrike. Precautionary shutdown engine number 2.

C Arrow 545. Roger. State intentions.

P Request priority landing. Arrow 545.

C Arrow 545. You are number 1 to land, runway 18. Turn right base at your discretion. Report final.

P Number 1 for runway 18. Wilco. I think we have problems with our right wing. Arrow 545.

C Arrow 545. Roger. What sort of problems do you have?

P I think we may have some damage to the engine and leading edge which is causing drag. Request emergency assistance on landing. Arrow 545.

P Roger. Emergency assistance is standing by, Arrow 545.

5a 1 flock 2 detect 3 impact 4 hit 5 frighten
6 corridor 7 track 8 species

5b 1 hit 2 flock 3 impact 4 species 5 detect
6 corridor 7 tracked 8 frightened

Unit 7 Cargo

2a Put it in a container and label it clearly (you can also bind/seal the container, but this is less important).

2b 1 They will protect the cargo from damage and rain, they're harder to steal, they're cheaper, and they stop parts of the cargo getting lost.
2 The name, address, and phone number of the person shipping and the person receiving the goods.
3 Articles of unusual size or length, articles of extraordinary value, art objects, hazardous materials, perishables, very fragile items, live animals.

3a Warning: refuelling panel intermittent warning light
Problem: refuelling panel is open
Position: bottom right of fuselage, behind right wing
Solution: engineer has closed the panel

3b 1 Do you have contact with an aircraft engineer?

2 We're not sure if it's open or closed.
3 Ask Sunair if that fuel panel door is on the bottom of the fuselage.
4 The engineer reports that he has closed the panel.
5 Confirm the warning light is extinguished.

4b Model answer:
P Tower. YR-YYG at stand 2. Can you contact an engineer for us?
C YR-G. Roger. What's the problem?
P We think we have an inspection panel open.
C Roger. Where on your aircraft?
P On the … underside of the fuselage.
C Did you say on the side of the fuselage?
P Negative. On the underside of the fuselage.
C Roger. I'll pass that information on now.

5a 1 band 2 piece 3 panel 4 label 5 pallet
6 protect 7 load 8 wrap

5b 1 piece 2 wrapped 3 band 4 loaded 5 pallet
6 panel 7 label 8 protected

Unit 8 On-board fire

2a c, e, d, b, a
2b 1 e 2 c 3 b 4 d 5 a
3a 1 are 2 washroom 3 have 4 will not
5 has gone out 6 parking gate
3b 1 Confirm that the fire is in your middle lavatory?
2 We are going to continue the mayday call.
3 We will make a complete stop on the runway.
4 We have a signal from the cabin that everything's OK.
5 We'll call ground services for your arrival.

4b Model answer:
P Ramon centre. Circle 122. 24 miles DME north-east of MARA descending FL240. We have a fire in the cabin.
C Circle 122. Ramon centre. Understand you have a cabin fire. Where exactly is the fire?
P In the rear galley. Cabin crew report smoke and flames from the kitchen equipment. Request immediate descent and landing at Puerto Bello. Circle 122.
C Circle 122. Roger. Descend FL160.
P Descending FL160. Circle 122. The cabin attendants have deployed extinguishers, and we believe the fire is out now. Circle 122.
C Circle 122. Confirm your fire is extinguished.
P Affirm. As a precaution, we'd like to continue descent and landing.

5a 1 deploy 2 mounted 3 foam 4 monitor
5 appliance 6 media 7 hose 8 halon

5b 1 appliance 2 mounted 3 monitor 4 deploys
5 hose 6 media 7 foam 8 halon

Unit 9 Ground movement incidents

2a ✓ pilot error ✓ weather conditions
2b 1 F 2 F 3 F 4 T 5 F
3a 1 green lights 2 117 3 106 4 back 5 marshaller
6 right 7 grass 8 drainage
3b 1 Confirm we're parking at stand 116.
2 Your stand is a long way before that.
3 We'll set another set of green lights for you.
4 We've got the marshaller in sight now.
5 You have cut across the grass and hit the drainage ditch.

4b Model answer:
C TA327. Follow the green lights to bay 114.
P Follow the lights to bay 140. TA327.
C TA327. Negative. Bay 114. That's one one four.
P Confirm we're parking in bay 114. TA327.
C TA327. Affirm. Say position.
P TA327. We're adjacent to bay 117.
C You've gone past. We'll set another set of green lights. Can you see any green lights?
P Affirm. TA327.

5a 1 fence 2 van 3 marshaller 4 camouflage
5 followed 6 sign 7 narrow 8 truck

5b 1 truck 2 marshaller 3 camouflage 4 narrow
5 signs 6 follow 7 fence 8 van

Unit 10 Pilot incapacitation

2a ✓ incident statistics ✓ causes of incapacitation
✓ advice for pilots ✓ who is affected
2b 1 not common at all 2 both pilots and passengers
3 the same food 4 chest pain, weakness and palpitation
3a 1 T 2 T 3 F 4 T 5 T 6 F
3b 1 c 2 d 3 e 5 a

4b Model answer
P Scherberg centre. Quickjet 988. The captain has lost consciousness. I have control of the aircraft.
C Quickjet 988. Confirm your captain is unconscious.
P Affirm. He passed out completely about four minutes ago. His eyes are shut and he is not responding to my calls. Quickjet 988.
C Quickjet 988. Roger. Understand your situation. What can I do to help you?
P I'd like to divert. What airports are available? Quickjet 988.
C Quickjet 988. Runway 04 at Dransen is available. That is 67 miles north-east of your position. And runway 06 at Ternosand is available and is 23 miles to the south.
P Does Ternosand have ILS? Quickjet 988.
C Quickjet 988. Negative. Runway 06 at Ternosand is a VOR/DME. Runway 04 at Dransen has ILS.
P Roger. Request radar vectors to Dransen. Quickjet 988.

5a 1 vomit 2 nauseous 3 cramp 4 incapacitated
5 pass out 6 short 7 tighten 8 poisoning

5b 1 tightening 2 passed out 3 cramps 4 nauseous
5 vomit 6 short 7 incapacitated 8 poisoning

Progress test 2

2a 1 d 2 a 3 e 4 b 5 c
2b 1 a 2 c and e 3 a and b 4 d 5 a and c 6 b and c
3a 1 N653D 2 Transair 6326 3 N653D 4 Transair 6326
5 N653D 6 Postline 912 7 Webair 537 8 Transair 6326
3b 1 Unable to proceed on Echo due aircraft in opposite direction.
2 We have a Postline Fokker 50 nose to nose with us on Echo.
3 There's a taildragger about 1,000 ft ahead, crossing left to right.
4 We hit the lamp post here with our left wing.
5 Company advise we disembark our passengers here.

4b Model answer:
P Tower. TC-WIJ. We've got a problem and we need to return to our stand.
C T-IJ. Roger. What's your problem?
P There is a strange sound coming from the hold and our cargo door indicator is going on and off. T-IJ.
C T-IJ. Roger. Proceed to stand … 3 via taxiway P.
P Proceed to stand 6 via taxiway P3.
C Negative. Stand 6 is now occupied. Proceed to stand 3 via taxiway P.
P Roger. Stand 3 via taxiway P. We'll need maintenance at the stand. T-IJ.
C T-IJ. Roger. We'll pass on your request.
5a 1 truck 2 piece 3 load 4 nauseous 5 follow
6 panel 7 foam 8 sign
5b 1 panel 2 track 3 nauseous 4 load / unload
5 foam 6 follow 7 pieces 8 sign

Unit 11 Ditchings

2a ✗ lakes ✗ fishing
2b Flotation devices: inflatable life vest, raft
Actions: File and fly on an IFR flight plan, radar / traffic advisories when operating VFR
Causes: fuel exhaustion, mismanagement, contamination, mechanical failure, fuel icing
3a 1 fuel lines may be blocked 2 200 degrees, 30 miles
3 send helicopters 4 Oxair 371's level and intentions
5 in the sea near two ships 6 warn the ships
3b 1 Get the cabin crew to brief the passengers.
2 I think we are not able to reach the land …
3 We may lose both engines.
4 We have very limited coastal rescue facilities.
5 The helicopter is five miles away and has you in sight.
4b Model answer:
P MAYDAY MAYDAY MAYDAY. Shalaba Centre. PK-RTA. Beechcraft Bonanza. 23 miles west of Binjai island, altitude 5,000 ft, heading 090°. Severe engine vibration. Say nearest airfield.
C P-TA. Roger MAYDAY. There is a grass strip on Lungga Island, 19 miles south.
P We're losing power very quickly. I believe we have only minutes remaining. P-TA.
C P-TA. Roger. We'll alert the coastguard. Say intentions.
P Turning right, heading 180°. Will prepare to ditch if necessary. P-TA.
C P-TA. Say persons on board.
P Four persons. We have flotation devices. P-TA.
C P-TA. Roger. A coastguard helicopter has been scrambled and is on its way to you now.
5a 1 boat 2 procedure 3 inflatable 4 lake 5 coast
6 impact 7 flotation 8 ship
5b 1 lake 2 boats 3 coast 4 procedures
5 impacting 6 flotation 7 inflatable 8 ship

Unit 12 Animals

2a b
2b 1 dry ice 2 15 minutes 3 a dog 4 32,600 lb
5 because he was rushing and no one told him about the animal 6 more information about live animals
3a 1 b, d 2 a (animal c, a horse, is not mentioned)
3b 1 c 2 e 3 d 4 a 5 b
4b Model answer:
P We will cancel departure. Request taxi instructions to company maintenance hangar. Aviair 352.
C Aviair 352. Vacate right taxiway C. Hold short runway 29R.
P Next right and hold short of runway 29R. Aviair 352.
C Aviair 352. Say reason for aborted take-off.
P We hit animals and we suspect damage to the nose gear. Aviair 352.
C Aviair 352. Roger. What type of animals were they?
P Small rodents, many of them running over the field and runway. Aviair 352.
C Aviair 352. Roger. We're sending a vehicle out now.
5a 1 hazard 2 dead 3 secure 4 wildlife
5 run around 6 roam 7 rodent 8 live
5b 1 rodents 2 hazard 3 dead 4 roaming 5 secured
6 wildlife 7 live 8 running around

Unit 13 Wind and turbulence

2a Pilots
2b 1 closure rate 2 weather conditions 3 in sight
4 radio contact 5 trailing 6 lead 7 controlled
8 converging
3a 1 Traffic alerts given for severe precipitation, not snow
2 GH1559 requested delaying vectors, not straight-in approach
3 No mention of minimum fuel
3b 1 The weather appears to be moving south.
2 Roger, what heading do you want?
3 We have a thunderstorm right over the airport right now.
4 We may be able to bring you in on runway 19.
5 Keep us informed and let us know what works for you.
4b Model answer:
P We are expecting to pass through some severe turbulence. Make sure all passengers are seated with their belts on.
S How long before we reach it?
P Probably in about five minutes.
S We have a passenger who has locked the toilet.
P You have a passenger who's blocked the toilet?
S Negative. They've locked the toilet and can't open the door.
P If they don't open the door soon, they'll just have to sit tight.
S OK, I'll try to tell them.
5a 1 touch 2 separation 3 anticipate 4 bumpy
5 displace 6 unconventional 7 trailing 8 unstable
5b 1 separation 2 bumpy 3 anticipated 4 displaced
5 trailing 6 unstable 7 unconventional 8 touch

Unit 14 Icing

2a d, c, a, e, b
2b 1 aircraft type 2 temperature 3 flight level
4 lost airspeed (knots) 5 propeller rpm
6 rate of descent (ft per minute)
7 altitude descended to
3a c, a, e, g, h, f, b, d,
3b 1 I'm just now getting some control.
2 Maybe your pitot tube is frozen up.
3 We lost all airspeed with no warning.
4 You might pick up some more icing.
5 You might have ice on your antenna.

4b Model answer:
P Winjao approach. S464. Climbing.
C S464. Roger. Say reason for climb.
P We are very close to stall speed due severe icing. Control is very hard. Stand by. S464.
C S464. Standing by.
P Level FL100. We appear to have control again. S464.
C S464. What would you like to do?
P We believe we have a fault with our anti-icing equipment. We will need VMC. S464.
C Toyokoh is available. Ceiling 2,900 broken. Winds 230° at 10 kn.
5a 1 accumulate 2 build up 3 pick up 4 heat 5 boot 6 freeze up 7 melt 8 vibrate
5b 1 builds up 2 accumulates 3 heat 4 melt 5 boots 6 freeze up 7 vibrate 8 pick up

Unit 15 Storms

2a ✓ the experience of flying through a storm
✓ on-board weather detection equipment
✓ turbulence
✓ flight diversions
2b 1 When there are active storm clouds at high altitudes.
2 She usually goes for a gap in the line.
3 When visibility is poor, or you are flying at night.
4 Turbulence; the radar only senses water droplets.
5 300nm; to circumnavigate a large area of showers over the western Pacific
3a 1 c B 2 a A 3 b C 4 d D
3b 1 d 2 a 3 c 4 e 5 b
4b Model answer:
P Sâo Luis Centre, Norte 243. Can we have slower speed?
C Norte 243. Say reason
P We are encountering severe chop. Have passengers with minor injuries.
C Maintain speed 340 kn. What injuries do you have?
P They're not too serious but there's some discomfort in the cabin. We've got intense weather activity. Norte 343.
P Norte 243. We've been hit by lightning. Can you give us an update on weather? Norte 243
C Norte 243. At time 23 a Boeing 767 passing ACANA at FL310 reported severe turbulence and convective storm activity.
P Roger. Request diversion to Santasina due weather. Norte 243
5a 1 through 2 jolt 3 cell 4 strike 5 around 6 circumnavigate 7 into 8 updraft
5b 1 circumnavigate 2 cell 3 into 4 through 5 jolts 6 updrafts 7 strikes 8 around

Progress test 3

2a c
2b

Rules and restrictions	Passenger Injuries
At least ½ mile visibility at destination before departure allowed	46% due to turbulence
Summer weather	Departures
Hot humid weather causes thunderstorms, severe lightning, turbulence	Can be delayed if there is bad weather not just at final destination but also along the route

3a a 1 b 2 c 6 d 1 e 4 f 5
3b 1 The emergency services have been alerted.
2 What is the closest suitable terrain for a forced landing?
3 I don't think we have enough height to make it over the water.
4 A right turn will take you closer to rescue vessels.
5 We are advised there is no activity on the lake.
4b Model answer:
C N340S. Advise you have weather twenty miles ahead.
P Is it showing light or heavy? N340S.
C N340S. Severe Charlie Bravos.
P Has anyone flown through the area at or near my level? N340S.
C N340S. Negative. All VFR traffic re-routing to the north.
P Can you give me the weather to the north?
C N340S. 28 miles north-east of TYT VOR/DME at time 34, a Beech Bonanza at 6,000 ft reported no significant weather.
P Can you give me a heading to follow that route? N340S.
5a 1 impact 2 separation 3 unstable 4 vibrate 5 inflatable 6 hazard 7 trailing 8 circumnavigate
5b 1 inflatable 2 unstable 3 impacted 4 trailing 5 circumnavigated 6 separations 7 hazards 8 vibrate

Unit 16 Depressurization

2a b
2b 1 Boeing 747 (not A330) 2 18 crew (not 8)
3 cruising at 30,000 ft (not just after take-off)
4 rupture was 1.5 m
5 other cylinders failed because of external causes
3a 1 T 2 F 3 T 4 T 5 F 6 T 7 T 8 F
3b 1 Your transmission is breaking up.
2 Can you switch to frequency 128.975?
3 We would like to work this frequency.
4 We cannot communicate with the flight attendants.
5 We'll need assistance for the passengers.
4b Model answer:
P Brast Centre. Firely 314. Request immediate descent.
C Firefly 314. Descend to FL170.
P FL170. Firefly 314.
C Firefly 314. Say reason for descent.
P We've got a steady loss of pressure from an emergency exit. Firefly 314.
C Firefly 314. What's the problem with your door?
P It's the right-hand forward emergency exit. We think the door's not sealed properly. Request diversion to Janstad. Firefly 314.
C Firefly 314. Understand you have pressurization problems. Continue descent FL170. On reaching contact Janstad approach 132.250.
5a 1 structural 2 sabotage 3 rupture 4 failure 5 penetrate 6 residue 7 discharge 8 external
5b 1 penetrated 2 rupture 3 structural 4 residue 5 external 6 sabotage 7 discharge 8 failure

Unit 17 Passenger problems

2a Western Pacific 76 diverted to Seoul at 0930 due unruly pax. Flight attendants unable to restrain him. Other pax held him down until arrival in Seoul. Pax arrested by local law enforcement.
2b 1 T 2 T 3 F 4 T 5 F 6 T
3a c, f, b, e, a, h, g, d

3b 1 I understand you are looking for a diversion.
2 We've got about five people holding him down.
3 Two seven left is not going to work.
4 We'd like to go to a company gate, if possible.
5 Would you like me to coordinate with operations?

4b Model answer:
C Cortes Centre. Mainline 534. We are getting reports of a serious disturbance in the cabin.
Mainline 534. Roger. What is the nature of the disturbance?
P Our flight attendant tells us a fight has broken out between three male passengers. Request diversion to San Clemente International. Mainline 534.
C Mainline 534. Descend FL120. Pass FUERTA at FL170 or above.
P Descend FL120. Pass FUERTA at FL170 or above. Mainline 534.
C Mainline 534. How is the situation in your cabin?
P It's not very stable. It seems other passengers are getting involved. We have all the flight attendants occupied now. Mainline 534.
C Mainline 534. Roger. We'll call law enforcement and medicinal services for your arrival.

5a 1 alarm 2 confront 3 hurt 4 handcuff 5 unarmed
6 threaten 7 yell 8 hold down

5b 1 unarmed 2 yelling 3 threatening 4 held down
5 confronted 6 handcuffed 7 hurt 8 alarm

Unit 18 Bomb scare

2a He gave a note to a flight attendant saying he had a bomb, then tried to walk towards the cockpit.

2b 1 Munich 2 early 50s 3 after the plane landed
4 They said the man was not drunk and they didn't see anybody fighting, the flight was very calm.
5 When they landed and saw armed police
6 One of the cabin crew overreacted to being harrassed by the passenger.

3a Problem: 3 suspicious passengers on board, claiming to have a bomb and threatening to blow up the aircraft
Action: pilot plans to put the aircraft into negative 'g' so the passengers will fall down and can be overpowered
Resolution: passengers are restrained and package is not a bomb, immediate diversion and landing

3b 1 We have had a report of three suspicious passengers.
2 There are three armed passengers standing in the aisle.
3 I intend to put the aircraft into negative 'g'.
4 The purser and security marshals are in a position to overpower them.
5 The three passengers are restrained and the package is not a bomb.

4b Model answer:
P Western Approach. Atlanta 3278. We have a suspected bomb on board.
C Atlanta 3278. Squawk 7500. What is your status now?
P Squawking 7500. A flight attendant found a note saying we had a bomb on board. We are searching the aircraft at this time. Atlanta 3278.
C Atlanta 3278. Did you say your flight attendant found a bomb?
P Negative. We found a written note. As a precaution, we'd like to return to Drovenda International.
C Atlanta 3278. Roger. Fly heading 260°.
P Heading 260°. The crew have completed the search and haven't found anything. We believe it's a hoax, but we'd like to return anyway. Atlanta 3278.
C Atlanta 3278. Roger. We'll have security services meet you on landing.

5a 1 disposal 2 overpower 3 restrain 4 suspicious
5 demand 6 air marshal 7 armed 8 examine

5b 1 suspicious 2 armed 3 demanded 4 air marshal
5 overpower 6 restrained 7 examined 8 disposal

Unit 19 Take-off incidents

2a 1 a tailstrike 2 applied 3 lifted off 4 many scrapes
5 ground installations 6 airframe

2b 1 first officer 2 captain 3 five 4 runway centreline
5 localizer 6 inspection panel

3a 1 Goose 506 2 Taurus 823 3 Skybird 451
4 Azure 525, Easy 775 5 Goose 506 6 Flightstar 433

3b 1 c 2 e 3 b 4 d 5 a

4b Model answer:
P Vishapur tower. Tiger 243. Airborne passing height 500 ft. I believe we had a tailstrike.
C Tiger 243. Confirm tailstrike.
P Tiger 243. Did you see it?
C Tiger 243. Affirm. You had a long scrape along the runway, maybe 200 yards. There's debris on the runway now.
P What's on the runway? Tiger 243.
C Tiger 243. You've left metal debris on the runway. I'm getting reports of sections of fuselage skin by the runway threshold. State intentions.
P Ahh, we will return to your airfield. Tiger 243.
C Tiger 243. Roger. Climb altitude 2,500 ft. Turn left heading 210°.

5a 1 scrape 2 abrasion 3 leak 4 over 5 material
6 skin 7 debris 8 trail

5b 1 abrasion 2 material 3 over 4 debris 5 scraped
6 skin 7 trail 8 leaked

Unit 20 Lost

2a 1 The pilot spilt coffee over the instruments.
2 Because the print was so small and they were not aligned with magnetic north.
3 By talking with ATC, they found where they were on the chart.

2b 1 radar 2 GPS 3 flickered 4 circuit breakers
5 heading 6 magnetic north 7 confirmation
8 Bilbao VOR

3a 1 don't seem to be working here 2 compass
3 four 4 threshold 5 Contact

3b 1 Are you declaring a fuel emergency?
2 Can you vector us low enough to see the airport?
3 This will be a no-gyro surveillance approach.
4 The airport will be twelve o'clock.
5 Continue visually, you are cleared to land runway 27 left.

4b Model answer:
P Elaka Control. I-26EF. Our instruments are not working properly and we are unsure of position.
ATC I-26EF. Say last known position.
P Last known position 18 miles NE of CELRA VOR.

ATC I-26EF Confirm last known position of 80 miles NE of CELRA VOR.
P A Negative. Last known position 18 miles NE of CELRA VOR.
ATC A Roger, last known position 18 miles NE of CELRA VOR. A. Squawk 6600 on your transponder.
P Squawking 6600. A.
ATC A I don't have you on my screen. State aircraft type, speed and altitude.

5a 1 align 2 compass 3 route 4 rescue
5 gyroscope 6 chart 7 low 8 seem

5b 1 route 2 gyroscope 3 seem 4 charts 5 aligned
6 compass 7 low 8 rescue

Progress test 4

2a a 2 b 4 c 6 d 5 e 1 f 3

2b 1 The aircraft lurched to the left.
2 People were crying and shouting.
3 A window popping out or a cargo door blowing.
4 10 to 15 minutes. 5 They gave a round of applause.
6 The gaping hole that he saw in the side of the aircraft as he got off.

3a 1 F 2 F 3 T 4 T 5 F 6 T

3b 1 Traffic is passing over you now, right to left, slightly above.
2 Do you have your landing lights on?
3 What are you flying over now?
4 We're over a main road, with a built-up area at my 10 o'clock.
5 We believe you are approaching Draburg airfield.

4b Model answer:
P Moosan approach. Runner 564. Request immediate return and landing at Moosan.
C Runner 564. Roger. Turn left heading 260°. Vectoring for ILS approach runway 15.
P Turn left heading 260°. Runner 564.
C Runner 564. Report reason for return.
P We've got a female passenger on board who's pregnant with twins. Our crew suspect she's going into labour. Runner 564.
C Runner 564. I'm sorry. What's the problem with your female passenger?
P We think she's going to give birth. Runner 564.
C Runner 564. Roger. We'll call paramedics for your arrival.

5a 1 examine 2 debris 3 hurt 4 rupture 5 skin
6 align 7 suspicious 8 sabotage

5b 1 debris 2 suspicious 3 aligned 4 ruptured
5 sabotage 6 skin 7 examined 8 hurt

Unit 21 Aircraft breakdown – mechanical

2a b

2b 1 T 2 T 3 F 4 T 5 F 6 T

3a 1 rectify the problem 2 all 3 are touching the ground
4 secure the doors 5 has 6 will arrive in a short time

3b 1 Runway 26 out of service due disabled aircraft.
2 Do you want to disembark your passengers?
3 We need to get the main landing gear pinned.
4 Is there maintenance on the field that can do it?
5 We're checking if a mechanic is on site for you.

4b Model answer:
C ITM. Cleared for take off-runway 03. Wind 170°. 8 kn.
P Cleared for take off runway 03. ITM.
Fuimo Tower. ITM. I've got problems with my engine. Unable to proceed with departure.
C ITM. Roger. What sort of problems do you have?
P I've got serious vibration and abnormal noise when I increase throttle. Request return to the apron. ITM.
C ITM. Are you able to taxi under own power?
P Negative. The noise is now very loud at idle, so I'm shutting down the engine. Request tow. ITM.
C ITM. Expect tug in two minutes.

5a 1 inoperative 2 release 3 MEL 4 mechanic
5 refuse 6 hangar 7 sort out 8 fit

5b 1 hangar 2 release 3 MEL 4 installed
5 inoperative 6 refused 7 mechanic 8 sort out

Unit 22 Aircraft breakdown— electrical

2a c

2b 1 F 2 T 3 F 4 F 5 F 6 T

3a 1 any electronics at all?
2 your heading? 3 a radio check?
4 Mont St Michel?
5 a handheld radio right now? 6 see traffic out there?

3b 1 I think I see you on radar.
2 I'll watch to see if you turn that way.
3 I'll try to get the lights turned on.
4 There is no known traffic to conflict in the vicinity.
5 He has an electrical problem and may have no anti-collision beacon or strobes.

4a Model answer:
C Do you have any electronics at all?
P We are on back-up power.
C Do you have any electronics at all?
P I don't think you can hear us.
C I can hear you. Understand you are on back-up power. Are your instruments still working?
P Negative. We have some sort of electrical problem. We might have to divert.
C Saltash is the nearest airfield to you. Do you want to divert to Saltash? I'll get them to turn the lights on.
P Affirm. Divert to Saltash. We'll need the lights turned on.

5a 1 generator 2 strobe 3 delicate 4 wire 5 output
6 alternator 7 loose 8 charge

5b 1 wires 2 alternator 3 loose 4 charged
5 output 6 strobe 7 delicate 8 generator

Unit 23 Volcanoes

2a 1 e 2 a 3 f 4 c

2b 1 e 2 c 3 e and a 4 a 5 f and c 6 f

3a 1 weak 2 remain at 3 lower 4 60 km 5 light
6 not completely sure

3b 1 b 2 c 3 a 4 e 5 d

4b Model answer:
P Dawangi Centre. Island 549. We have a strong smell of sulphur in the cockpit.
C Roger. When did you first notice this smell?
P About three minutes ago, at time 12.
C Roger. Say visibility at your flight level.
P It's difficult to say. Yellow haze. We think it's getting worse.

C What is the wind direction and speed?
P Wind direction 190° at about 30 m/s.
C We had a report of an eruption at Mount Sinnang, 120 miles north-east of your position. Suggest turning left heading 310°.

5a 1 slope 2 fall 3 rim 4 haze 5 conical
6 lava 7 crater 8 smell

5b 1 conical 2 haze 3 smell 4 fall 5 lava 6 rim
7 slopes 8 crater

Unit 24 Dangerous goods

2a ✓ pesticides, ✓ aerosols, ✓ corrosives,
✓ matches, ✓ mercury

2b 1 health 2 you know how they will behave 3 can't
4 vibrations 5 didn't weaken

3a 1 NM 2 T 3 T 4 F 5 NM 6 T

3b 1 We've got fumes in the cabin.
2 It's starting to hurt my eyes.
3 Call me if anything important changes.
4 You've got a big problem back here.
5 We'll be on the ground soon.

4b Model answer:
FA There is a strange smell back here.
P Is it coming from the air vents?
FA No. I can't locate the source.
P Check the overhead lockers.
FA I've done that. I think it's coming from the hold.
P What makes you say that? You don't have access to the hold.
FA The floor is very warm.
P All along or just in one spot?

5a 1 handler 2 floor 3 stack 4 hold 5 substance
6 forbidden 7 symbol 8 precaution

5b 1 handlers 2 precautions 3 symbols 4 substances
5 forbidden 6 stacked 7 floor 8 hold

Unit 25 Collisions

2a 1 Three 2 Wingtips

2b 1 T 2 T 3 F 4 F 5 F 6 F

3a 1 G-JG 2 G-ER, G-ME 3 G-JG 4 G-ER
5 G-JG 6 G-JG, G-ME

3b 1 There will be traffic backtracking opposite direction.
2 Keep to the right-hand side.
3 The Piper just brushed our left wing tip.
4 Request permission to step out of the aircraft.
5 When you have parked, could you telephone me?

4b Model answer:
P Andong tower. Sparrow 734. We've had a collision with another aircraft.
C Sparrow 734. Say position.
P East Apron, on D, by V, just opposite terminal 2, stand 8.
C Roger. What's happened?
P The Fokker clipped our right wing as it was taxiing to stand.
C Roger. We'll send out a vehicle to you now. Do you have damage?
P Affirm. We have damage. It was quite an impact. We've applied parking brake and shut down both engines. We're contacting company now.
C Roger. Would you like assistance with your passengers?

5a 1 tip 2 stationary 3 strike 4 clip 5 lodge
6 slice 7 underside 8 contact

5b 1 clipped 2 stationary 3 tip 4 sliced 5 struck
6 underside 7 lodged 8 contact

Progress test 5

2a It was to set up a position on the ground and then direct the air force to drop the supplies.

2b 1 only 2 didn't 3 on the ground 4 below
5 dropped in the right places 6 The terrain

3a 1 Eastern 865 2 Airtrans 323 3 EI-TFC
4 ARMYAIR 232 5 EI-TFC and ARMYAIR 232
6 Sunbird 223 and Airtrans 323 7 Eastern 865

3b 1 d 2 c 3 e 4 b 5 a

4b Model answer:
P Santa Catalina. TI-MOO. Airborne, passing altitude 1,300 ft. We have a problem with our flaps.
C TI-O. Roger. What's the nature of the problem?
P They're stuck at 11°. We believe it's mechanical failure. Request return to your airfield. TI-O.
C TI-O. Turn left heading 340°. Vectoring for visual approach runway 16. Report runway or field in sight.
P Turn left heading 340°. Wilco. This will be an abnormal flap landing. TI-O.
C TI-O. Roger. I'll call services for your arrival.
P It will be a long roll-out and we expect problems with braking. TI-O.
C TI-O. Roger. Services will be in position at the far end of the runway.

5a 1 loose 2 haze 3 install 4 stationary 5 tip
6 underside 7 wire 8 inoperative

5b 1 stationary 2 loose 3 inoperative 4 underside
5 installed 6 tip 7 haze 8 wire

Unit 26 Fuel problems

2a 1 Leaks to the fuel tank systems.
2 They are working with Airbus to solve the problem.

2b e, c, a, b, d

3a Problem: pilot can't retract flaps under 10°
Action: dump 70,000 kg of fuel, then return to Filton
Position: 20 DME from Filton, in the Severn estuary, five miles north of Lundy Island

3b 1 We're trying to decide whether to continue or come back.
2 It looks like we're going to have to dump fuel.
3 I'll give you vectors to Filton on completion.
4 We can't retract the flaps below 10%.
5 It's going to take about 30 minutes.

4b Model answer:
P MAYDAY MAYDAY MAYDAY. Vletch Centre. Dakair 374. 23 miles north-east of Solibursk, altitude 2,600 m. Heading 040°. Antonov 2 with engine problems. Request distance to nearest airfield.
C Dakair 374. Roger MAYDAY. Crukov is one o'clock, 32 km.
P Roger. Altitude 2,400 m. Unable to maintain altitude. Request block altitude between 1,000 and 2,000 m and diversion to Crukov. Dakair 374.

C Dakair 374. Fly heading 080°. Say again your problem?
P Heading 080°. We have problems with our fuel flow. Dakair 374.
C Dakair 374. Confirm you have low fuel?
P Negative. We have a lot of fuel … over 900 l of fuel. We have fuel flow problems. Suspect fuel contamination. Dakair 374.
C Dakair 374. Roger. Understood you have fuel flow problems.
5a 1 unerviceable 2 refuel 3 tank 4 leak 5 line 6 pump 7 recurring 8 block
5b 1 unerviceable 2 recurring 3 line 4 blocked 5 leak 6 tank 7 refuelling 8 pumped

Unit 27 Airfield activities

2a 1 b 2 c
2b 1 F 2 T 3 T 4 F 5 F 6 T
3a

Activity	Location	Pilot / ATC action
Balloon	300 ft SE airfield	Hold until balloon has passed
Building equipment	North side of taxiway A	Hold until clear to proceed
People	Western perimeter fence	Security personnel on their way
Paraglider	Threshold of 22 right	Police will investigate

3b 1 e 2 a 3 b 4 d 5 c
4b Model answer:
C Police 3. Braela tower. Say reason for hold.
P There's a large group of people gathering landside of the perimeter fence.
C Police 3. Confirm there are people airside.
P Negative. They are landside. Police 3.
C Police 3. Roger. The people are landside. What are they doing?
P They appear to be setting up some sort of demonstration. Police 3.
C Police 3, Roger. And where are they exactly, and how many?
P Between 50 and 100 people. They are half a kilometre east of the intersection of Airport South Avenue and the Industrial Estate. We have alerted officers on the ground. Police 3.
5a 1 converge 2 fencing 3 investigation 4 protest 5 breach 6 climb 7 break through 8 occupy
5b 1 converged 2 protest 3 climbed 4 fencing 5 breached 6 occupied 7 investigation 8 breach

Unit 28 Aerodrome/airfield environment

2a c
2b 1 6,132 ft 2 200 ft 3 basin 4 100–200 ft 5 5,436 ft
3a 1 through 2 north of the centre line 3 they needed to stay on the western side of the airport
4 260 degrees 8 knots
3b 1 You are too close to the extended centreline of the approach.
2 We need to check the routing of the convoy.
3 We will stay on the western side of the airport
4 Confirm that we can cross after the aircraft lands?
5 Turn right and hover taxi to the terminal.
4b Model answer:
P Guadalan Tower. Helicopter BR. South of runway 08, altitude 700 ft, to land west apron.
C Helicopter BR. Hold in the hover south of runway 08.
P Say again. BR.
C BR. Hold south of runway 08, altitude 700 ft. Traffic on short final.
P Holding. Traffic in sight. BR.
C BR. Traffic will taxi to the east apron via taxiway Bravo. Land at your discretion. Wind 060° 10 kn.
P Confirm discretionary clearance to land on the west apron. BR.
C BR. Affirm. Land west apron at your discretion.
5a 1 marshaller 2 hover 3 extended 4 plateau 5 basin 6 dust 7 overshoot 8 corridor
5b 1 corridor 2 basin 3 plateau 4 extended 5 overshot 6 marshaller 7 hovering 8 dust

Unit 29 Airfield and navigation equipment failure

2a a navigation aid
2b 1 T 2 T 3 T 4 F 5 F
3a 1 c 2 b 3 d 4 a
3b 1 c 2 e 3 d 4 a 5 b
4b Model answer:
P Krystena approach. Southern 636. I have negative visual contact with the runway.
C Southern 636. Roger. All our lights are on at high intensity.
P We can see buildings on the ground, at our 10 o'clock. Residential area. Southern 636.
C Southern 636. Roger. You shouldn't be near any built-up area. Say altitude and heading.
P Altitude 4,200 ft. Heading 055°. We suspect faulty localizer indications. Southern 636.
C Southern 636. Confirm problem with localizer.
P Affirm. Going around. Southern 636.
C Southern 636. Roger. Climb altitude 6,000 ft. Report reaching.
5a 1 unserviceable 2 concentrate 3 lose 4 trust 5 faulty 6 fail 7 ignore 8 erroneous
5b 1 ignore 2 trust 3 faulty 4 lose 5 erroneous 6 fail 7 unserviceable 8 concentrate

Unit 30 Ground services

2a 1 e 2 c 3 a 4 d 5 b
2b 1 digger 2 cleared for take-off 3 safety procedures 4 runway 22L and the taxiway 5 in the control tower 6 switched off
3a United 914 have a good view (not Korean 257).
ATC ask a 'follow me' vehicle to check (not a fire tender).
Korean 257 engines are already at idle so he doesn't comply with the request.
3b 1 When you get to Yankee follow Korean Air.
2 Do you see anything near Korean Air?
3 We're looking at the right side.

4 Maybe his outboard engine hit it.
5 They'll make a visual inspection.

4b Model answer:
P Tower. Gul 357. Pushing back from stand 37. We just saw an accident with a baggage cart.
C Gul 357. What happened?
P The cart turned sharp right, and all three carriages turned over. There's baggage all over the apron. Gul 357.
C Gul 357. Where did it happen?
P Behind the Royal European B737 at stand 36. Gul 357.
C Gul 357. Did it hit anything?
P I didn't see any collision. It was going pretty fast though. Gul 357.
C Gul 357. Roger. Hold position. We'll get support services out there now.
5a 1 digger 2 intersection 3 idle 4 park
5 construction 6 swerve 7 cut 8 axle
5b 1 digger 2 construction 3 intersection
4 swerved 5 parked 6 axle 7 cut
8 idle

Progress test 6

2a a bus driver b captain c bus passenger d first officer
2b 1 a, c 2 a 3 b 4 c, d 5 a, d 6 d
3a 1 Rotary 42 2 Starjet 872 3 Rotary 42 4 Courier 254
5 Rotary 42 6 Courier 254 7 Starjet 872
3b 1 d 2 b 3 e 4 c 5 a
4b Model answer:
C Shuttle 808. Nan Tak approach. Identification lost. Cancel CHANI 1 ALPHA arrival. Turn right 180°. Hold at SRINA FL110.
P Turn right 180°. Hold at SRINA FL110. Say reason for hold. Shuttle 808.
C Shuttle 808. We have radar outage at Nan Tak. Expect further clearance at 57. Time now 17.
P Sorry sir. Say again the problem. Shuttle 808.
C Shuttle 808. We have radar failure at Nan Tak. Technicians are working on the problem now.
P Understand radar failure. Shuttle 808.
Nan Tak approach. Shuttle 808. Holding at SRINA FL110. We are getting close to minimum fuel. How is your radar?
C Shuttle 808. We still don't have radar. Hong Nan is accepting arrivals. Suggest diversion to Hong Nan. Radar service terminated. Continue own navigation.
5a 1 hover 2 faulty 3 unidentified 4 tank 5 catering
6 converge 7 recurring 8 overshoot
5b 1 converging 2 catering 3 unidentified 4 recurring
5 tank 6 overshoot 7 hovered 8 faulty

Review test 1

2a 1 Working hours / pilot fatigue 2 Short haul / regional airlines 3 In a hotel
2b 1 15 hours and 45 minutes 2 Because his day was longer than expected 3 Every eight hours 4 60
5 New pilot fatigue rules 6 It's too noisy for them to rest in.
3a 1 oil pressure warning 2 try and depart again
3 Tiger 236 4 moves into the path of a taxiing aircraft
5 slippery taxiway surfaces 6 a group of small animals
7 assistance with taxiing 8 A group of passengers
9 wait until a parking position becomes available
3b 1 We had a low oil pressure indication.
2 We watched him skid right out in front of us.
3 We have reports of poor braking action.
4 There's a group of rodents running around.
5 Steering is going to be an issue.
6 We'll need to find a parking position for you.
4b Model answer:
C VH-GHD. Unknown traffic, 10 o'clock, six miles, crossing left to right, height 5,000 ft, slow moving.
P Roger. Looking out. VH-GHD.
C VH-GHD. If not sighted, turn left heading 270°.
P We have a balloon in sight, 10 o'clock, approximately 1,000 ft above. VH-GHD.
C VH-GHD. Roger. Can you give me a description?
P It's a large silver balloon with blue writing on the side. VH-GHD.
C VH-GHD. Roger, thank you. Is the balloon manned?
P Negative. The balloon appears unmanned. VH-GHD.
5a 1 disruption 2 wrap 3 regulation 4 anticipate
5 potential 6 touch 7 melt 8 deviate
5b 1 regulations 2 anticipate 3 wrapped 4 touching
5 melted 6 potential 7 deviate 8 disruption

Review test 2

2a ✓ controller health, ✓ growth in the industry,
✓ recruitment and training, ✓ retirement
2b 1 T 2 T 3 F 4 T 5 F 6 F 7 T
8 F 9 F 10 T
3a 1 Rime ice 2 It's stuck 3 Wake turbulence
4 Vectors for avoidance of wake turbulence
5 Suspected stroke 6 Priority handling of A6-TYC
7 Has regained full control
8 On the south apron for rapid transfer to hospital
9 Loss of cabin pressure
10 Right-hand forward service door
3b 1 f 2 c 3 b 4 a 5 e 6 d
4b Model answer:
P MAYDAY MAYDAY MAYDAY. Afarsha centre. Fahed 141 B737-700, 64 miles south-west of BADAT, FL410. 138 persons on board. We have fuel problems. Request descent and landing at Qararan.
C Fahed 141. Roger MAYDAY. Turn right heading 040°. Descend FL280.
P Turn right heading 040°. Descend FL280. Fahed 141.
C Fahed 141. Say cause of emergency.
P We have a suspected fuel leak. We have an imbalance now of 2,000 lb. Fahed 141.
C Fahed 141. Confirm you have a fuel leak.
P Affirm. We have shut down engine number 1. Fahed 141.
C Fahed 141. Roger. Services are standing by at Qararan.
5a 1 leak 2 rescue 3 charge 4 overpower 5 strobe
6 block 7 external 8 pump
5b 1 overpower 2 pumped 3 leaking 4 rescue
5 charged 6 blocked 7 strobes 8 external

LISTENING SCRIPT

Unit 1 Near miss

1.01

This is a very simple picture of two aircraft both heading in the same direction but very close to each other. One is carrying straight on from left to right. The second one is veering away to the left at an angle of maybe 20 degrees, and is getting very close to the starboard side of the first one. Perhaps they were flying in formation and one's got a little too close, or maybe it's a near collision. The aircraft are both twin-engine. They look similar, although the lower of the two is smaller than the aircraft that is above. It's difficult to identify the airline. The first one looks like JAL, and the second one, possibly DHL. The numbers and letters are very indistinct, and its tail is obscured. The only thing that differentiates the two on markings is that the second one has a long stripe down the fuselage. It's a very simple picture of two aircraft flying close together against a background of fairly dense cloud.

1.02

In August last year, a British Airways 757 bound for Copenhagen was taking off on Heathrow's northern runway. At the same time, a Virgin Express 737 trying to land in thick cloud was directed into the path of the BA jet. The AAIB report says the aircraft avoided collision 2,400 ft over the London airport by just 800 ft. It blames poor communications between controllers in the Heathrow tower and says there was a combined mistake. Disaster was averted when a training inspector overheard the arrivals controller announcing he had turned the Virgin aircraft into the path of the British Airways jet. Both aircraft were then instructed by the arrivals and departures controllers to alter course. The report concludes with recommendations that communications between controllers should be improved, and that radar screens used to check aircraft conditions should be modified.

1.03

P1/2 = pilot 1/2, C = controller

P1 Kamket control. Good morning. YG343. Maintaining FL370, 10 DME to ATI, squawking 2662.

C YG343. Kamket Control. Roger, squawk 4113.

P1 4133. YG343.

C YG343. Incorrect readback. I say again. Squawk 4113.

P1 Squawking 4113. YG343.

C Readback correct.

P2 Kamket control. DF211. Good morning. FL340.

C DF211 good morning. Maintain 340. Expect higher.

P2 Maintaining 340. DF211.

C YG343. Radar contact. Descend to FL310.

P1 Descending to FL310. YG343.

C DF211 turn right heading 270° due traffic.

P2 Right heading 270°. DF211.

C YG343 Traffic north-east, seven miles, slightly below, fast moving.

P2 Roger.

C DF211 I say again. Turn right heading 270° due traffic.

DF211. Avoiding action. Immediately turn hard right heading 270° due traffic. Break break.

YG343. Cancel descent. Turn right immediately heading 090°.

P1 Kamket control YG343, TCAS climb.

C Roger.

P1 Kamket control YG343, we are clear of traffic, level at 360. We have some injuries.

C YG343. I'm sorry. What is your problem?

P1 We have medical problems, people on board are hurt. Request immediate descent.

C Roger. Understand you have medical problems. Descend to FL230. Contact Kamket approach 124.885.

Unit 2 Special flights

1.04

This is part of an air-show routine involving two aircraft, two Boeing Stearman, I believe. They are two vintage bi-planes, and they are crossing each other in formation at an angle of approximately 40 degrees, relatively close to each other. The aircraft in the foreground is slightly lower than the aircraft behind. Both aircraft are giving off display smoke trails which are set up by putting oil into the exhaust. The aircraft are in display colours, and they have got sunburst-type aircraft markings on the top wing. Because they are performing this aerobatic manoeuvre and have the same colours and markings, I think they are part of a display team. The weather is looking quite nice, in the background there is light cloud with blue patches, so it looks like quite a pleasant day.

1.05

There are a number of differences between VFR and IFR arrivals. The first surprise for the IFR pilot is that although they are instructed to contact tower, they probably won't be able to talk to the tower! We will always try to talk to pilots, but sometimes it's just not possible. This is because there's often not even enough time for verbal responses from the VFR traffic in the pattern, so instead we ask pilots to rock their wings as a response or if we instruct an aircraft to turn base, and that aircraft turns base, that's also sufficient acknowledgement for us.

Because we are able to land multiple aircraft on the runway at the same time, the second surprise is that IFR pilots will see VFR aircraft turning final in front of them until they are about one and a half miles out. Usually, the VFR in front will land long, and the IFR will land short. IFR arrivals are given touch-down position on the runway marked with a green dot. Landing on this dot allows plenty of space for roll out and also gives good access to taxiways, which allows the pilot to vacate the runway quickly.

The third thing to be aware of is that IFRs will probably be sequenced behind VFR traffic travelling at, say, 80 kn, and pilots need to bring the speed right down on final and really concentrate on flying their aircraft at these airspeeds, which many pilots might not be used to.

1.06

P1/2/3/4/5 = pilot 1/2/3/4/5, C = controller

C Benejov tower I can see a blue and white high-wing east of Benejov. Please rock your wings.

Thank you. Say type.

P1 Cessna 182RG Skylane 34 Papa.

C Roger. Skylane 34 Papa, keep your gear up until west of Benejov. Follow the Beech Baron ahead.

Benejov tower to red Extra 300, reduce speed 100 kn. Turn left and get in line behind the Ikarus. Follow the railway tracks west.

White Auster Alpine west of Benejov. You've flown away from the railway tracks. Follow the track precisely. Thank you.

Blue Grumman abeam the radio mast. Leave the railway track and position left downwind runway 01. Monitor 124.575. They will identify you. Good day.

Benejov tower I see what looks like a low-wing approaching Benejov with a nose light on. Say your type and call sign.

P2 Tower it is a Socata TB 9. 546 Lima.

C Roger 546 Lima, do you see the Mooney at your 1 o'clock?

P2 Affirm 546 Lima.

C 546 Lima make a right turn in front of the Robin and stay behind the Mooney.

Yellow bi-plane. Rock your wings for me.

That's a beautiful aircraft. Say type.

P3 Thank you. 1933 Boeing Stearman.

C Stearman. Follow the Robin ahead.

Benejov tower I can see a white twin-engine west of Benejov doing S-turns. Say type.

P4 Seneca 301 Mike Alfa.

C Seneca 301 Mike Alfa, the Staggerwing up ahead is going to be too slow for you. Make a right turn 180°, and return to Benejov city to hold.

P4 Wilco Seneca 301 Mike Alfa.

C We'll find you an aircraft that matches your speed.

Benejov tower to white amphibian east of Benejov, possibly a Grumman?

P5 Affirm tower we are a Grumman Duck.

C Grumman Duck, follow the traffic ahead. Turn right overhead Benejov city and follow highway 31 south for seaplane base.

Unit 3 VIP flights

1.07

This is a picture of a Gulf airliner, which looks like an Airbus in dispersal, waiting probably for some VIP passengers. The reason that I say that is the air-stair door is open, there is a long red carpet going right to the foreground of the picture. There is a cleaner with a brush, it looks like a straw brush, making sure the carpet is as clean as possible before the arrival of the VIP.

There is a man standing by the air-stair doorway waiting for the VIPs. The APU is attached to the aircraft, obviously the aircrew are in the cabin, the air conditioning is on waiting for the VIP, and right in the foreground of the picture on the right-hand side there is fan-type palm tree, which is used for decoration in the Gulf.

At the tail of the aircraft it looks as if some baggage has just arrived and halfway along the aircraft, by the engine, there is a group of people who are possibly departure officials waiting to say goodbye to the VIP. So there is an air of expectation about it. It's almost certain to be the Gulf because the visibility is poor with high humidity and a fog like background.

1.08

I = interviewer, DB = David Boateng

I David Boatang has claimed the recent closures at Nnamdi International airport are unacceptable. I have Mr Boatang with me now. Mr Boatang surely it is only right that airports are closed for VIP flights?

DB No it's not. The recent VIP closures at Nnamdi Azikiwe International Airport represented a great danger to public safety. They led to unnecessary congestion of the airspace and increased the danger of collision by holding aircraft.

I But why is there an increased danger of collision?

DB Too many aircraft in the airspace at the same time stress the control tower staff and increase their chances of making grave human errors. It is also common knowledge that the maintenance of most domestic passenger aircraft is short of the international standards and in a situation of poor visibility, the risk of crashing is much higher, especially in a mountainous area such as Abuja.

I So poor maintenance is also a factor?

DB Not just maintenance. Air passengers always consist of all sorts of people: women, children, the aged, the infirm being medically evacuated. Many of these people could become anxious or suffer from a shortage of needed oxygen and other forms of first aid. There is also the possibility of mid-air panic especially as a result of rumours on board.

I But if VIPs are not given preferential treatment won't they be reluctant to travel here and won't that affect our economy?

DB The unnecessary and long holding of aircraft is not only dangerous, it is very expensive for aircraft operating costs and for company time – the time lost by the passengers in their business, etc. The most logical solution to delayed and cancelled flights as a result of VIP movements is for Nigeria to have its own special military airport for its Air Force and VIPs.

I Is this something that happens elsewhere?

DB Yes, it happens in lots of countries. The Edward Royal Air Force Base near London, Andrew Air Force Base of Washington DC and Le Bourget Airport in France. Even here in Nigeria, the Air Force Base in Kaduna has a separate airport which removes the burden of VIP flights from the main airport.

I Thank you very much Mr Boatang. What do you listeners think? Have you ever been delayed at an airport waiting for a VIP?

1.09

P = pilot, ATC = air-traffic controller

ATC Cargolux 233 leave Midhurst heading 027° and descend FL180.

P Heading 027°, descend FL180. Cargolux 233.

ATC Cargolux 233 this is Essex Radar, possible delay, expect to hold at VATON at FL180.

P Roger, expect hold at VATON. Cargolux 233.

Essex radar. Cargolux 233 request.

ATC Cargolux 233. Essex radar, pass your message.

P Roger. London informed us no delay expected. Confirm we have to hold at VATON? Cargolux 233.

ATC Cargolux 233 affirm. Due to VIP movement: we have Air Force One inbound to Stanstead, delays are expected to all inbound and departing aircraft.

P Understood, but our NOTAM says scheduled air carriers AND cargo flights are excepted. Cargolux 233.

ATC Cargolux 233. Say again?

P Our copy of the NOTAM says no delays to scheduled passenger and cargo flights adhering to schedule and following the LOREL STAR.

ATC Ah, copied Cargolux 233. Will double check that for you ... Cargolux 233. There was a short notice amendment to the NOTAM for security reasons, ALL inbound traffic subject to delay. Expect holding at VATON and maintain FL180.

P Copy that and maintaining FL180. Unfortunately we did not get that information before leaving JFK and we are approaching minimum fuel as the winds did not work out as forecast crossing the pond. We will have to take our alternate, Gatwick, if we cannot get a clearance in the next 10 minutes. Cargolux 233.

ATC Cargolux 233, I'll keep you advised in the next 15 miles, report passing Ockham.

P Wilco Cargolux 233.

Passing Ockham, maintaining FL180. Cargolux 233.

ATC Cargolux 233. Airforce One is on ILS now, there'll be no more than a five-minute delay and you are number three in traffic. Reduce speed to 320 kn and we should be able to avoid a hold at VATON.

P Roger. Thank you very much. Cargolux 233.

Unit 4 Delays

1.10

This is a picture of three commercial aircraft in a tight sequence on an instrument approach to an airport at sunset. The first aircraft looks to me like a 757, followed by a 737, followed by a 747. The leading aircraft is at the lowest of the three, and has its gear deployed and its landing lights on, and so does the second aircraft. The third aircraft, at the back, is at the highest altitude, and hasn't adopted the landing configuration yet. I think the aircraft are on final and the controller is using two segregated runways and radar because the separation is small and the aircraft are quite close together. I'd say they are about half a mile apart. It must be a very busy international airport. It's a nice sunlit situation; the sky is very clear. We've got a little bit of low cloud to the right which is rather attractively lit by the setting sun.

1.11

Good morning. My name's Donat, and I'm giving this morning's tactical briefing at 0800 hours. The present situation is affected by some staffing issues at Rhine control in Germany. Affected sectors are middle sector of Karlsruhe sector and Nattenheim base and middle, which are combined. The delays have dropped since we proposed some level caps and individual re-routings, but there is still some delay.

We have over-fly problems in central Europe, due to thunderstorms and rain. There is also bad weather causing disruptions, especially in Vienna, with the arrival regulated from 0700 to 1200 causing delays of up to one hour.

Also, in Spain we have Madrid airport regulated until 1200 due to CBs, and delays there are up to 30 minutes. I guess this regulation will be extended if the weather doesn't get better.

We have, in Italy, a regulation running for Pisa due to work in progress. This is from 0820 until 1020 and is giving around 30 to 35 minutes delay.

For Istanbul we have an arrival regulation running until 2020 this evening. Nothing we can do there due to lack of parking space.

In Cyprus, the west north sector will be also regulated between ten o'clock and 1330. We are coordinating and we are hoping that by eleven o'clock the rate will be increased by two aircraft per hour. Unfortunately, the Echo to Sierra airspace is also regulated, making any rerouting impossible for traffic going to or coming from Israel.

Before I hand over to meteorology, I ought to remind you that the Romanian air force is conducting training exercises over their airspace today.

1.12

P = pilot, C = controller

a

C KLM234. Expect further clearance time 1920, anticipate additional 30-minute delay at Malmö.

P Roger, 30-minute delay. Request reason for delay? KLM234.

C KLM234. We have a disabled aircraft on runway.

P Roger. KLM234.

1.13

P = pilot, C = controller

b

P Groeber Approach. OE598.

C OE598. Groeber. Pass your message.

P Kingair C90 from Grollach. IFR. FL140. Estimate GYU29. Information Charlie, QNH 1010.

C OE598. Remain outside controlled airspace due sector saturation. Time 22. Expect joining clearance at 47.

P Remain outside controlled airspace. OE598.

1.14

P = pilot, C = controller

c

P Stansa Tower. CC32. Request pushback.

C CC32. Negative. There is a spillage on the ramp behind you. Hold position, anticipate 10-minute delay.

P Roger 10-minute delay. CC32.

1.15

P = pilot, C = controller

d

C D4Y. Maintain hold north, as published, delay indefinite, snow removal in progress, anticipate update at time 1130.

P Roger. Can we have lower speed due chop at this level? D4Y.

C D4Y. Cleared to Levico, hold as published.

P Cleared to Levico, wilco. D4Y.

1.16

P = pilot, C = controller

e

C 9A3. Delaying action. Weather below landing minima at Kilschtuna. Fly heading 275°.

P Turning left heading 275°. Do you have an estimate for an improvement in the weather? 9A3.

Unit 5 Belly-landings

1.17

I'm looking at a picture of probably a medium-sized turbo prop. It's from Switzerland because it has the Swiss national emblem on the tail. It's sitting toward the end of a runway and obviously has had either a gear problem, the gear has perhaps collapsed, or there was a gear problem in flight and the pilot did a wheels-up landing.

There's a gentleman standing by the aircraft looking very thoughtfully towards the wing root. I suspect he is an engineer, who's been sent initially to make an assessment of the damage. Obviously there will have to be some work done to get the aircraft back on to its wheels and towed back to the hangar.

Interestingly the propeller blades don't look too bent. So whether the aircraft landed with the engines stopped or not, I don't know. If the engines were going we'd expect bent propellers. The setting of the airport is fairly rural. There is a tree-lined horizon, quite nice weather, the man is in shirt sleeves, the sky looks blue and I think the sun is out.

1.18

I = interviewer, O = Mr Oblovsky

I Today a Tupolev 154 performed a gear-up touchdown during its landing here at Almaty airport. It skidded on the runway, but fortunately was able to take off and land normally after a go-around. The passengers were very lucky to have landed without any injuries. I have Mr Oblovsky with me, a spokesperson for the airport. Mr Oblovsky, I understand that the ground proximity warning system which warns the crew to lower the undercarriage was switched off. Is that correct?

O Yes it's true. Because the approach is so low, just 100 m over the mountains, the warning was going off all the time and was distracting the crew.

I And that led to the aircraft landing with gear up?

O No. The approach was faster than expected and because the runway was occupied by another aircraft, a 757, the pilot decided to do a go-around. But when the Tupolev captain saw that the 757 was taking off he changed his mind and decided to land.

I But with gear up? Surely even with the GPWS switched off the crew would have gone through their checklist and realized the gear was not extended.

O They simply didn't have time because of the change of mind and they only realized just before landing. The captain immediately ordered a go-around. The aircraft reacted slowly and hit the runway and then lifted off the ground.

I Was the aircraft damaged?

O The Tupolev has large landing gear carriages which shielded the landing gear, wing and flaps. The aircraft skidded on these but was able to take off and land normally after a go-around.

I So this is clearly a case of pilot error?

O At this stage it is too early to say and we need to examine all the evidence.

1.19

P = pilot, ATC = air-traffic controller, T = tower

P Colombo Radar. PHG 3002 has right main gear unsafe indication. Request radar vectors for ILS runway 04 and low pass to confirm wheels are down.

ATC PHG 3002 turn left heading 120°.

P Turn left heading 120°. PHG 3002.

ATC Descend to altitude 3,000 ft, QNH 1,000.

P Continue descent to altitude 3,000 ft on QNH 1,000. PHG 3002.

ATC PHG 3002. Turn left heading 065°.

P Left heading 065°. PHG 3002.

ATC PHG 3002 cleared for the ILS approach runway 04, report localizer established.

P Cleared for ILS approach runway 04. Wilco. PHG3002.

Localizer established 04 with 10 nm to run. Confirm cloud base. PHG 3002.

ATC PHG 3002. Cloud base 2,000 ft. What are your intentions?

P We will level at 500 ft AGL and request a visual inspection from Tower to confirm all wheels are down. PHG 3002.

ATC PHG 3002. Roger. Continue approach. Contact Tower 118.7.

P Roger, contact Tower 118.7 PHG 3002.

Colombo Tower, PHG 3002, localizer established runway 04 at distance 8 nm. Will call level at 500 ft for a low pass to confirm wheels down.

T PHG 3002. Colombo Tower. Roger. Continue approach, wind 060° 10 kn.

P Continue approach. PHG 3002.

Colombo Tower, maintaining 500 ft. PHG 3002.

T Colombo Tower. PHG 3002, all wheels appear down. What are your intentions?

P We are minimum fuel. Request climb to 1,500 ft for a visual left-hand circuit and request immediate landing clearance for runway 04. PHG 3002.

Progress test 1

1.20

This is a picture of a British Airways VC10. It looks like it's standing by either waiting for a VIP to arrive or it's just dropped him or her off. It's stationary beside the taxiway and the engines are switched off. There is a red carpet and a dais which run away from the aircraft to the taxiway. The carpet is red of course and the dais is surrounded by gold chain and posts. There is nobody on the dais at all. All the activity is taking place by the aircraft itself. There are two air stair doors, one leading to a closed door – the front one – and the main passenger one. There are one or two people in uniform at the top of the stairs. There's a group of spectators, some in dark suits, some look as if they are ground crew. There's also some security, some soldiers who are armed. And there is a baggage container near the back of the aircraft and an air conditioning unit also towards the back. It's a beautiful clear day, not a cloud in the sky. There is some very dry grass coming off the taxiway either side of the carpet. There is a feeling of expectation surrounding the entire picture.

1.21

R = Reporter, Y = Yuri

R Two passenger airlines were just seconds from disaster in a near miss incident near Krasnodar. A quick thinking air-traffic controller saved the lives of 302 people. It's not just pilots who are responsible for the safety of passengers. Teams of dispatch engineers have a huge responsibility. At this centre each controller monitors up to ten aircraft at a time. Yuri has been working as a controller for over ten years. Yuri's quick thinking prevented two planes that were only 200 metres apart from crashing into one another. Yuri, can you talk us through what happened?

Y Well I could see that the two airplanes were too close together, and both immediately responded to my instructions.

R Why were they so close?

Y The Tupolev 154 and a Boeing 767 both departed during my shift. But the Tupolev had problems with its landing gear and they were unable to retract so the airplane started to lose altitude. Meanwhile the Boeing beneath it was climbing at full throttle over the aircraft. They were both travelling at high speed and were only 15 seconds away from colliding. I instructed the Boeing to turn right. The whole incident was over very quickly but it seemed to last forever

R Yuri has received a lot of media attention and many calls. But he simply gets on with his job.

Y The risks are many, but with concentration and good teamwork we are able to keep the sky safe.

R Usually we don't know the names of the people who keep us safe in the sky. But now this air-traffic controller is no longer unknown and he is getting all the praise he deserves

1.22

P = pilot, ATC = air-traffic controller

P Sayumbu tower. Narua 236. Downwind.

ATC Narua 236. Roger. How is your gear now?

P The steep turn didn't shift the gear so we're still indicating right main gear up. Narua 236.

ATC Narua 236. You are number one for runway 16L. State intentions.

P We'd like to try a touch-and-go to see if that loosens the right gear. Request touch-and-go, runway 16L. Narua 236.

ATC Narua 236. Approved touch-and-go runway 16L. Report final.

P Wilco … and after touch-and-go can you give a visual on the gear? Narua 236.

ATC Narua 236. Affirm.

P Narua 236. Final.

ATC Narua 236. Cleared touch and go runway 16L. Surface wind calm.

P Cleared touch and go runway 16L. Narua 236.

ATC Narua 236. Your right main gear still appears up.

P We're declaring an emergency now and we'd like to land the aeroplane. Which is the best runway for abnormal gear landing? Narua 236.

ATC Narua 236. Roger Mayday. Runway 16L is the best runway for you. There is plenty of space either side of the runway should you need it.

P Roger. Request full services and a visual approach and landing runway 16L.

ATC Narua 236. Fire and rescue services are on standby. Report left downwind runway 16L.

P Wilco. Narua 236.

We'll be touching down left of centreline, and ahhh… be advised we're likely to veer to the right on the runway. Narua 236.

ATC Narua 236. Roger. Thank you for the information.

Unit 6 Birds

1.23

This is a military transport aircraft, a high-wing twin turboprop aircraft, on a runway. It looks like it's about to take off, as both engines are running and the aircraft has its landing lights on as it would do for take-off. By the look of it, it's starting its take-off roll. The runway has a slight dip in it heading down towards me, and in the foreground is a flock of white birds which look like storks of some sort. A lot of the birds are starting to take off so they have obviously been frightened by the aircraft. This could pose a problem for the pilots. In the background is a wooded area.

1.24

I = Interviewer, D = David

I David, we're standing by runway 01 here at Whitsand International airport where your team is working with a new system. Can you tell us what we have here?

D Yes, sure, this is a mobile bird detection radar system designed to cover the runway here where we are at the moment. We have a horizontal radar that's tracking bird movements four to six miles around the airport. And this is the vertical radar which covers the approach and departure corridors. This detects birds four miles out in the corridor and gives us risk levels on bird activity.

I And what are you hoping to do?

D The goal is to track species that pose the greatest risk to aircraft, the medium, large and flock-size category birds, and provide useable control data to the air-traffic controllers so they can more effectively manage the risk.

I How reliable is this technology?

D Oh, very. We can pick up a small bird out to several miles, and flocks out to eight, ten or even 12 miles. Let's go inside and have a look.

I So show me what this is.

D These computers process the real-time data from the radars, and the data for bird tracks. The screen here shows us the bird activity around the airport.

I And ... er ... each of these green dots on the screen is a bird?

D Yes. Basically, it's an air-traffic control radar for birds.

I Is the system operational?

D It's used by the military, so it is already operational, but we're still testing it for use in civil aviation.

I And what's the timescale on this project? When do you think it'll be ready?

D We're aiming for launch in …

1.25

P = pilot, C = controller

P Victor Tango 821. Airborne, passing 800 ft. I think we hit birds.

C Victor 821. State intentions.

P Request priority landing. Victor 821.

C Victor 821. Roger. Turn left heading 230°. Report downwind.

P Left heading 230°. Wilco. Victor 821.

Victor 821. Downwind to land.

C Victor 821. Roger. Have you got any damage?

P Affirm, we have a cracked windscreen and I think we had an impact with the nose gear. Victor 821.

C Victor 821. Roger.

P I tried recycling the gear, but we still have a red light. Request a tower fly past to confirm the status of the nose gear. Victor 821.

C Victor 821. Cleared low pass runway 05. Surface wind 070° at 15 kn not below 500 ft.

P Cleared low pass runway 05 not below 500 ft. Victor 821.

C Victor 821. We see what looks like a loose cable or hose on your nose gear and looks like remains of some birds stuck in the mechanism, but the nose wheel appears down. What are your intentions?

P Roger. We'll attempt another approach and landing. Victor 821.

C Victor 821. Roger. Turn left heading 230° and report again downwind.

P Left heading 230°. Wilco. Victor 821.

Victor 821. Downwind request continue the approach, but I believe we will have problems with the steering on landing.

C Victor 821. Roger, we will have emergency vehicles on stand-by.

P It could be that we swerve to the left on landing. I'm going to make a slow approach, but be aware that we could come off the runway to the left. Victor 821.

C Victor 821 Roger. You are number one to land. Emergency services are ready for your arrival. Report again on final.

Unit 7 Cargo

1.26

I'm looking at a picture of a busy part of an airfield which deals with cargo. There are three 747s lined up. One is Japanese Airlines, the middle one is Cathay Pacific and the third one I'd guess is Polar Air Cargo. I can't read that on the side but we can see a tail which I think belongs to it with a 'P' in a circle and Polar written above that right on the tip of the tail.

It's a very busy terminal area. The foreground is covered with cargo, most of it in containers or on pallets, and there are one or two vehicles which are presumably bringing ground crew to the site. Toward the background of the scene we can see areas of the terminal building or perhaps the maintenance facility, I don't know.

1.27

AFHL = Air freight help line, C = customer

AFHL Hello air freight. How can I help?

C Yes, hello. I need to send a shipment of goods and I need to know the best way to pack them.

AFHL OK. Well it will depend on the nature of the goods, but generally, the most important thing is to put them in a container.

C Is that really necessary?

AFHL Well, containers will protect your cargo from physical damage and from rain and will also protect your cargo from thieves, by making it more difficult to steal. We charge for containers at lower rates than uncontained cargo of the same weight, so it would be cheaper for you. Finally, containers will keep your cargo together and stop portions of it getting lost.

C OK, that all sounds sensible. What do I need to do with regards to labelling?

AFHL You need to label each piece in big, bold letters in two places with the name, address, and phone number of the shipper and consignee, that is, the person or company you are sending the goods to.

C And do I need to wrap the container?

AFHL Many of our customers bind their shipments in containers with metal bands. Use three in each direction around the piece. Use numbered seals if possible. We can provide you with these if you'd like to use them.

C I've got some pretty unusual things I'd like to ship. Can you tell me what is and isn't permitted?

AFHL You'll need to look at our rules for all the details. But to give you an idea, there are special procedures for articles of unusual size or length, articles of extraordinary value, art objects, hazardous materials, perishables, very fragile items, live animals and so on.

C I see. Well actually I do have some quite valuable art pieces. What kind of special procedures do I need to go through?

AFHL If you'll just hold the line for one moment I'll put you through to someone who'll be able to give you some more specialist advice. One moment please.

C OK. Thanks for your help.

1.28

P1/2 = pilot 1/2, ATC = air-traffic controller

P1 Birmingham Ground this is Sunair 401. We have a little problem. Do you have contact with an aircraft engineer? We'd like him to look at our aircraft.

ATC Sunair 401. What do you need him to look at?

P1 We have an intermittent refuelling panel warning light and we're not sure if it's open or closed. Sunair 401.

ATC Roger. Sunair 401, an engineer is on his way. Can you let me know the location of the panel?

P1 On the right side of the fuselage, behind the right wing, Sunair 401.

ATC 401. You say the access panel is on the right wing behind the fuselage?

P1 Negative. On the right side of the fuselage, behind the right wing. It's about head height. Sunair 401.

P2 Tower. Kinglines 153.

ATC Pass your message. Kinglines 153.

P2 Ask Sunair if that fuel panel door is on the bottom of the fuselage.

ATC Sunair 401, is it on the bottom of the fuselage?

P On the bottom on the right side, Sunair 401.

P2 It's open. There's a small door hanging open on the bottom of the right side of the fuselage on the Sunair A340, Kinglines 153.

ATC Sunair 401 that was from Kinglines 153, she just taxied behind you.

P1 Roger. Kinglines 153, thank you.

ATC Sunair 401. Birmingham Ground, the engineer reports that he has closed the panel. Confirm the warning light is extinguished.

P1 Affirm. Many thanks. We are now ready to taxi to taxiway B3. Sunair 401.

Unit 8 On-board fire

1.29

This is a picture of an airport fire-service training exercise. There is a mock-up aircraft which is made to look like a DC-10. The starboard engine is engulfed in flames and there appear to be some flames over the right wing, close to the main fuselage. The fire is producing quite a lot of black smoke which is dispersing towards the rear of the aircraft structure. There are two large six-wheel fire appliances attending to the situation, both on the right-hand side of the aircraft. Each of the appliances has various firemen around it, and firefighters on top of the appliances. The appliance on the right-hand side is starting to spray water or foam onto the aircraft structure using the roof-mounted fire hoses. Both trucks have 'BAA Firefighting service' written on the side which makes me think that the picture was taken in the United Kingdom.

1.30

We have a large fleet of appliances at our station at Bijarati International.

First on the list are the high-volume pumping vehicles. These are capable of carrying an enormous amount of foam, and then applying it under massive pressure and volume. They are equipped with a roof-mounted high-volume 'monitor' or 'nozzle' which can shoot fire extinguishing media a long way to reach the fire.

Another piece of equipment is the snozzle, which has recently been introduced at Bijarati. This type of roof-mounted monitor has a device resembling a spike that can pierce the fuselage of an aircraft and deliver large amounts of water and foam inside the aircraft. This makes airport firefighting safer, as firefighters do not need to set foot inside the aircraft to extinguish fires.

Then we have these rapid intervention vehicles which are capable of arriving at the scene of an incident more quickly. We also use these smaller vehicles as command vehicles during rescue or firefighting operations.

Our airport is category ten, meaning that we are able to handle the largest aircraft, such as the A380. As part of the regulations for category ten airports, we also keep an aerial ladder platform capable of reaching the upper deck of the A380.

The fleet is also supported by smaller fire appliances similar to those used in domestic firefighting. They are mainly used to deal with incidents within the buildings around the airport, but also assist at aircraft incidents.

1.31

P = pilot, C = controller

P Nohma tower. Fastwing 64. We are maintaining altitude 5,000 and we are cleared now to 2,500 ft on QNH 1010 millibars. We are starting our descent to Nhoma now. Fastwing 64.

C Fastwing 64. Nohma tower. Roger. We understand you have a fire. Cleared visual approach runway 07, I confirm the QNH is 1010 millibars. Report maintaining 1,500 ft. We have emergency services standing by. Is it a cabin fire?

P In our mid lav. Fastwing 64.

C Fastwing 64. Confirm that the fire is in your middle lavatory?

P Affirm. We deployed halon but we are going to continue the mayday call.

C Fastwing 64. Roger.

P For your information … we will make a complete stop on the runway, we will evaluate the situation then … and if we are not going to evacuate on the runway we will return to parking by ourselves and stop the aircraft there, Fastwing 64.

C Fastwing 64. That's copied. Confirm field in sight?

P Affirm. Fastwing 64

C Fastwing 64. Cleared to land runway 07. Wind is 120 at 22 kn.

P Cleared to land runway 07. Fastwing 64.

P Tower. Fastwing 64.

C Fastwing 64. Pass your message.

P As it looks now, we are able to taxi to our parking position. We have a signal from the cabin that everything's OK now. Fastwing 64.

C Fastwing 64. Roger. Proceed to the isolated parking position via G1. The emergency services will follow. We'll call ground services for your arrival.

Unit 9 Ground movement incidents

1.32

This picture is taken I think in the summer, probably in Western Europe or the USA. It shows a Boeing Aircraft with some stripes on it, following a follow-me vehicle. The vehicle is chequered and also has warning lights on it so it can make its visibility or its presence known to aircrew.

It's leading the aircraft along the line marking the taxiway, probably coming in to park, having just landed at the airport. I say that because we can't see any terminal buildings here. The background is very rural although I can see some high-tension cables in the further distance. So I presume it's just leaving a runway. Also if we look just behind it and under the right wing, we can see a board, marking one of the aircraft holding points on the taxi and runway network.

1.33

I = instructor, S = student

I Many pilots think a flight begins with take-off and ends when the aircraft departs the runway after the landing roll. This is partly true but a large number of problems can occur with aircraft on the ground, with the wind, for example, causing problems.

S Do you mean gusting winds?

I Winds, both steady and gusting can cause problems. A common one is a pilot landing in a strong wind which is aligned with the runway. When he turns off to taxi the aircraft is blown on to a wing tip and the pilot blames a sudden gust of wind even though the weather station reports no gusts.

S Are there any other situations that can cause problems on the ground?

I Ground obstructions cause just as many difficulties. The biggest hazard is night operations on dark ramps. But many accidents happen in daylight when pilots misjudge wingtip clearance, or focus on one side and hit something on the other.

S Are there many injuries?

I Not many of the accidents result in injuries. But there is always the occasional one where some unfortunate person walks into a spinning propeller.

S Ouch! So it's rare to hit a person, but what sort of thing gets hit the most?

I For buildings it's mainly hangars, and as for vehicles, fuel trucks tend to get hit the most.

S What about incidents involving other aircraft?

I Well they're not as common, but still significant. You get cases of colliding aircraft, and also aircraft waiting to proceed across a taxiway or runway colliding with an aircraft that lands and exits the runway at the same spot.

S So the advice to remember is that 'you're flying from the moment the engine starts until the moment you shut the engine down'.

I Absolutely.

1.34

P1 = pilot, ATC = air-traffic controller

ATC AL6R follow the green lights to bay 117. Remain this frequency

P Follow the green lights to 116. Remain this frequency. AL6R.

ATC AL6R. Say again.

P Tower. AL6R. Confirm we're parking at stand 116.

ATC AL6R, your stand is 117. Say position.

P We're at 106. AL6R.

ATC Confirm 106?

P We're right at 106. AL6R.

ATC AL6R, your stand is a long way before that. We'll set another set of green lights for you sir. Stand by please.

ATC AL6R. Can you see any green lights?

P Affirm. AL6R.

ATC AL6R, just follow the green lights. The green lights will lead you all the way back to bay 117.

P Roger. After this we'll follow the green lights back to 117. Thanks. AL6R.

AL6R. We've got the marshaller in sight now.

ATC AL6R. OK. Anyway the bay 117 is now just to your right, sir, and understand you have the marshaller in sight now.

P Got it. We got them in sight. AL6R.

ATC OK

P Thank you for your help.

P Er … Tower. AL6R. We've come to a stop. I think we've hit something.

ATC AL6R. You have cut across the grass and hit the drainage ditch.

P Er, Roger. We're stuck. Stand by. AL6R.

Unit 10 Pilot incapacitation

1.35

This picture shows a patient being removed from an ambulance to be put on board an aircraft for medical flight, or the patient has been removed from an aircraft and is being stretchered into the ambulance. The patient is wrapped in a large red tube. I think the scene is in China, because the writing on the ambulance looks like Chinese. There are a number of people attending to the situation, four or five of them wearing white suits and head gear and full-face breathing masks. There are other people watching who are dressed in plain clothes, and what looks like a nurse wearing a uniform and gloves. Everyone is wearing masks like those used by the public to prevent the spread of contagious diseases, for example, flu. In the foreground is the right wing of a turbo prop aircraft, possibly a Saab or a Dash, and to the left and to the rear of the picture, we can see the aft portion of a rear-mounted twin-engine jet aircraft, possibly an MD80.

1.36

As we know, any impairment to physical and mental health is a threat to safety. Fortunately, pilot incapacitation is quite rare. One study showed that in 15 to 20 million general aviation flights, six cases of pilot incapacitation were reported. However, in four of those cases, the pilot died at the controls.

The lesson is that anyone can become incapacitated at any time. And quite often it is non-flying friends or family that have to take over the aircraft. Therefore, it is essential that everyone on board knows what incapacitation is and how to deal with it.

Let's begin by looking at the causes of incapacitation. It can happen gradually or suddenly, ranging from mild to very severe. The most common causes of sudden incapacitation are gastrointestinal problems, such as stomach cramps, nausea and vomiting. Pilots must be careful with food and drink, particularly in remote areas or where there are poor facilities. Two pilots flying together should never eat the same food, and if possible, shouldn't eat at the same time.

Heart problems and fainting are the main causes of serious incapacitation. Complaints of tightening of the chest, which are often confused with indigestion, and weakness and palpitation should be taken very seriously. Sweating, repeated yawning or shortness of breath should all trigger suspicion.

1.37

P = pilot, C = controller

P Control, BF 324. I need some help.

C BF 324. Kadranga Control. Roger. What can I do for you?

P The pilot's passed out and I'm on my own up here.

C BF 324. Roger. Are you a licensed pilot?

P PPL. 80 hours. Not this aircraft.

C Roger. I'm getting help now from someone who's familiar with your aircraft. Are you flying the aircraft?

P The autopilot is on.

C OK. How many persons on board?

P My brother, who is the pilot, and my uncle. Can you help me back to Kadranga? We'll need an ambulance on the ground.

C Kadranga is quite busy now, so we're going to bring you into Katgas airport which is close by, and they have an ambulance.

P No one is responding. I'm on my own up here.

C You're doing very well. How are you feeling?

P OK, but the oily fumes are making me feel pretty nauseous.

C You could have carbon monoxide poisoning. Can you get fresh air into the cabin?

P I've got a window open, outside vents … are … open.

C Good. We're going to start your approach to Katgas now. Can you disengage the autopilot?

P Uhh … how do I do that?

C OK … by pushing the button on the control wheel.

P Autopilot disengaged.

C Good. You have control. Nice and steady, turn right 140°.

Progress test 2

1.38

This is an interesting picture of billowing black smoke, which fills almost half the picture. It's coming from what looks like a replica of an aircraft which has obviously been covered in oil or petrol and deliberately set alight. There is a four wheeled fire truck spraying foam onto the fire itself. The fire engine is in the foreground squirting out the foam onto very fierce flames issuing from the ground and all around the aircraft and very thick, dense smoke is rising up. It's obviously not an active aircraft because there are stands below the engines themselves and it's used as a model for firefighter practice. There is not much else in the picture, there are trees to the left-hand side. There's a clear sky with a few fair weather clouds around. But as I say most of the sky is obscured by the big black cloud of smoke.

1.39

a The aircraft ingested a Canada goose into number three engine. This uncontained failure caused parts to go into the number four engine. Flame and smoke could be seen coming from both engines. Both of the engines were destroyed. The aircraft was out of service for five days at a cost of over $8 million.

b As the aircraft broke through a cloudbank at 7,500 feet, it was struck by a flock of snow geese. The impact destroyed one engine, damaged several fan blades on another and extensively damaged the airframe. Repairs cost $6 million.

c The aircraft ingested a gull during climb out. Tower observed flames from number two engine and advised the pilot, who declared an emergency and returned to land without incident. The aircraft landed using single engine landing procedures. The core and all the fan blades were damaged. The engine had to be rebuilt.

d The aircraft struck over 400 blackbirds just after take-off. Almost every part of the plane was hit. Substantial damage was found on various parts of the aircraft. The number one engine had to be replaced and the runway was closed for an hour. Personnel were sent to disperse another large flock on the airfield.

e The crew think they hit a gull shortly after take-off. The number three engine had a vibration with oil quantity fluctuation. When the oil quantity dropped to zero the engine was shut down. Feathers were found in the engine after landing and repairs cost $1.5 million.

1.40

P = pilot, C = controller

1

P Telida tower. Webair 537.

C Webair 537. Pass your message.

P Stopped on E at the intersection with P. Unable to proceed on E due aircraft in opposite direction. Webair 537.

C Webair 537. Taxi to stand D2 via H and H 2.

P Unable to make the right turn onto P. We have a Postline Fokker 50 nose to nose with us on E. Suggest one of us will need to push. Webair 537.

C Postline 912. Hold position. You missed the right turn onto G. We're sending a tug out to you now.

1.41

P = pilot, C = controller

2

C N653D. Cleared for take-off runway 21. Wind 270°, 7 kn.

P Cleared for take-off runway 21. N653D.

N653D. Stopping.

C N653D. Roger stop. State intentions.

P N653D. There's a taildragger about 1,000 ft ahead, crossing left to right. Request backtrack for another departure.

1.42

P = pilot, C = controller

P Pourrais Tower. Transair 6326. We hit the lamp post here with our left wing. Suspect damage.

C Transair 6326. Roger. Request your intentions.

P Company advise we disembark our passengers here. Can you arrange a bus for us? Transair 6326.

C Transair 6326. Are you able to taxi to parking area two, straight ahead, 200 m?

P Transair 6326. Negative due precautionary engine shutdown.

C Transair 6326. Roger. We'll send a bus out to you now.

Unit 11 Ditchings

1.43

Well we're looking here at an aircraft wreck. I think it might be in America. I say that because the letters and numbers on the side of the fuselage, N888HB, tell us that the aircraft is on the American register.

It's difficult to say how many engines the aircraft had because only the tail and the top half of the fuselage are visible; the rest is submerged in water. It's difficult to say what the water is. It could be an everglade or it could be a lake. It could possibly be a coastal area. It looks to me like it's in the southern or central part of America.

The sky looks quite cloudy, stormy possibly. Where the sky meets the ground we can see evidence of palm trees and quite dense vegetation. So it could be in a fairly hot moist part of Central America, somewhere like Costa Rica or Nicaragua. The aircraft has clearly suffered quite a heavy blow, perhaps in landing, because it's actually split in the middle right through the nationality markings – the back of the aircraft has been completely broken.

1.44

Good morning. Today we're going to talk about ditching. It's something that people can worry about but nine out of ten pilots who attempt ditching in the ocean succeed, even when it involves coming down close to the shore.

So ladies and gentlemen, it still makes sense to carry at least basic flotation in every aircraft, not just those which travel over water or coastal areas. If you ever find yourself afloat in a river or even a pond, a device as simple as an inflatable life vest will greatly improve your odds of surviving. For longer distances a raft is essential.

Having Search and Rescue near improves survival odds. The best way to do this is to file and fly on an IFR flight plan. A radioed mayday call followed by loss of radar contact will usually result in you getting the immediate attention of the SAR. The next best SAR insurance is radar traffic advisories while operating VFR.

So, how do you avoid going into the water in the first place? Well, the most obvious things to avoid are running out of gas and making sure the gas you have isn't fouled with water or other debris.

At least a third of all ditchings are caused by fuel exhaustion, mismanagement, or contamination. Mechanical failures are listed as the cause in nearly as many ditchings as fuel exhaustion, about 25 percent. Fuel icing can also be a factor; apply carb heat immediately when you suspect icing. Time and time again, aircraft are taken out of the water with no apparent mechanical faults, strongly suggesting that carb ice has caused a fuel blockage

But if you have the choice between landing on the water or impacting trees, rocks, or other rough surfaces, I'd say the water is more likely to be survivable.

1.45

PNF = pilot non-flying, P = pilot flying, ATC = air-traffic controller

PNF What's the ditching procedure?

P Just run it from the check-list. Get the cabin crew to brief the passengers.

Nairobi Centre, this is Oxair 371. Confirm the distance to Mombasa. We have fuel problems, seems the lines may be blocked.

ATC Oxair 371. This is Nairobi centre. QDM Mombasa is 200° with 30 miles to run.

P We are not able. I think we are not able to reach the land … We are 4,000 ft and we may lose both engines … We may have to ditch. Oxair 371 ...

Oxair 371. We are declaring a mayday and preparing to ditch. Can you send us helicopters or something like that?

ATC Oxair 371. Nairobi centre. Mayday acknowledged. Malindi airport is closer in your two o'clock, range 12 miles. Can you make it there?

P Unable. Unable to maintain altitude … There are two ships. I'm going to join them left side heading 180. Can you contact them please. Mayday. Oxair 371.

ATC Oxair 371. We have very limited coastal rescue facilities. One CASEVAC helicopter is at Malindi and just airborne to your location. Say again your intentions? … Oxair 371. Say again. I did not copy. Say again your level.

P Complete the ditching drill. There is a boat left side, I'm going to go there. … 1,100 ft, preparing to ditch. Mayday 371.

ATC Mayday 371. Roger. The helicopter is five miles away and has you in sight. Malindi is right three o'clock at eight miles now. Will you make Malindi?

P Unable, unable to reach the field. We have two boats, on the left side, big boats. … We'll try to land near. Can you get a warning to them? Mayday 371.

ATC Mayday 371. Nairobi Centre. Wilco.

Unit 12 Animals

1.46

Here we have a scene, quite possibly in Africa, where a light single-engine high-wing aircraft has landed on a plain. The plain has fairly long grass, possibly a grass airstrip, but I cannot see the surface. I would say the area is quite remote as there are no buildings or airport facilities in the area. The aircraft has the registration SY, and looks like it could seat around eight passengers. In the foreground, on the right side of the picture, only 50 m or so from the aircraft, is a large mammal, an elephant, walking from right to left. In the distance there is a ridge of hills covered by scrub and sparse vegetation. The aerodrome itself is completely unsecured, which is why wild animals are able to roam freely around the area. This is clearly a hazard for flight safety.

1.47

P1/2 = pilot 1/2

P1 Everything was normal during pre-flight. The ramp guys gave the first officer the HAZMAT during the walkaround, and I noted a 20-kilo package of dry ice. During taxi, we had a delay waiting for the closeout, but we finally got the closeout and proceeded with departure for Jakarta, about quarter of an hour late.

P2 Oh yeah?

P1 After an hour or so, we got an ACARS message to contact dispatch. So we did and they said we had a dog loaded with the dry ice. We needed to have the dog moved to another compartment, so we diverted to …

P2 Oh, you diverted?

P1 Yeah, we contacted Brisbane control, explained the situation and told them we needed to land …

P2 What about your weight?

P1 Exactly! We were about 32,600 pounds, so we declared an emergency, but made a normal approach and landing, moved the dog to another compartment, and flew on to Jakarta.

P2 What a pain! Was the live animal noted on the closeout?

P1 Yeah, it was. Maybe we were rushing because of the delay, I don't know, but no one mentioned any live animals, either during the walkaround or pushback.

P2 Oh.

P1 I think we should have more information about carrying live animals, something other than just, 'live animal 01' on the closeout.

P2 Yeah, that would definitely help to avoid that kind of thing …

1.48

P = pilot flying, C = controller

P Tower, Cargostar 322.

C Cargostar 322. Pass your message.

P There's wildlife running around in front of our aircraft over here. Cargostar 322.

C Cargostar 322. Do you want a truck out there?

P Someone ought to come and check it out. They're heading over towards the grass on the right-hand side. Cargostar 322.

C Cargostar 322. Say position.

P Inbound on taxiway D, just before the intersection with G. Cargostar 322.

C Cargostar 322. What is it, do you know?

P They look like rodents, maybe rats, but they might be something else. Cargostar 322.

C Tokyo rats. I'll call catering.

1.49

P = pilot, C = controller

C Worldair 725. Cleared immediate take-off runway 14.

P Tower. This is Worldair 725. Negative take-off. We've got a turtle on the runway here in front of us.

C Worldair 725. Roger. Hold position. Cancel take-off clearance. We'll send someone out there to get it off, otherwise you'll be waiting all day.

P Worldair 725. Holding. Thank you.

1.50

P1/2 = pilot 1/2, C = controller

C Silverwing 383. Vacate right at F. Contact ground on 122.950.

P1 Turning right at F. 122.950. Silverwing 383.

C Topswiss 46. Cleared to land runway 33L. Surface wind 350°, 15 kn.

P2 Cleared to land runway 33L. Topswiss 46.

Topswiss 46. There's an object on the runway. Going around.

C Topswiss 46. Roger go around.

P1 Tower. Silverwing 383. There is a dead deer on the runway, about 3,000 ft down, right of centreline.

C Roger. We'll have a vehicle come and remove it.

Unit 13 Wind and turbulence

2.01

Well we've got a picture here of an Airbus operated by Swiss doing a very unconventional landing. We can only speculate why that happened, it could be the result of wake turbulence or it could have been an unstable approach. But basically he or she is landing with the right wing very, very low so that the whole of the aircraft has landed on the right main wheel. As we look at the picture we don't know what the end result will be. All we can see is the runway. There's smoke coming from the right-hand main wheel, which has touched the ground, but the nose wheel is still in the air.

Apart from the aircraft we can see the runway and some taxiways and a large area of grass behind it. The pilot could abandon the landing, apply power and execute a missed approach, but we don't know what happened and perhaps the pilot was able to land. Either way it does not look like a safe or a good landing.

2.02

OK, let's first think about when a controller should use visual separation. ATC need to consider the following points before separating departing aircraft by visual means. Aircraft performance, wake turbulence, closure rate, routes of flight and known weather conditions. If successive departure routes or aircraft performance prevent the pilot from maintaining adequate separation then don't apply visual separation of aircraft.

Now we need to consider a number of other factors – it must be day, the air-traffic controller must have both aircraft in sight and must be in radio contact with at least one of them. The flight crew of the trailing aircraft must have the lead aircraft in sight and be informed of the lead aircraft's position, its direction of flight and its crew's intentions. The pilots of the trailing aircraft must acknowledge sighting the lead aircraft and they will then be instructed to maintain visual separation.

It's important for the pilots of the trailing aircraft to remember that the tower controller will not provide visual separation between aircraft when wake turbulence separation is required. In controlled airspace with ATC radar coverage, the controller must inform the pilot of converging aircraft and VFR traffic. In cruise, when IFR and VFR aircraft are sometimes separated by as little as 500 ft, pilots must use appropriate avoidance procedures.

Of course, the problem with wake turbulence is that it is nearly always invisible, so pilots need to anticipate where it might be. Remember, the weather is going to affect wake turbulence. If it's still, then there is more chance of wake turbulence occurring.

Finally, remember your role. As air-traffic controllers you need to issue 'Caution – wake turbulence' warnings only. You are not responsible for anticipating the existence or effect of the condition.

2.03

P = pilot, ATC = air-traffic controller**

P We've got some heavy rain and thunderstorms. Can we go north? GH1559.

ATC GH1559, you can either go north or turn left and try and get south of it. My radar doesn't see as far as yours.

P I'd like to go north, the weather appears to be moving south so that's a pretty much better option right now. GH1559.

ATC GH1559. Roger, what heading do you want?

P 315 or 320° should be sufficient to clear it. GH1559.

ATC GH1559. Turn right heading 320°. All traffic runway 28 departure windshear alert. Runway 28 departure microburst activity one mile north of centreline, 20 kn loss, range five miles.

All traffic. SIGMET extreme weather warning. Severe precipitation, north-west of the field moving eastbound extending approximately five miles across.

GH1559. We have a thunderstorm right over the airport right now. I can take you somewhere to hold or give you delaying vectors while you wait it out. We have a windshear alert and microburst reports for runway 28.

P Why don't you just give us vectors around it? GH1559.

ATC GH1559. Roger, expect descent in a couple of miles and maintain your current heading. This will be vectors to the ILS for runway 28. There really isn't much once you go through the current area. Depending on what the wind does we may be able to bring you in on runway 19.

P Roger. Keep us informed and let us know what works for you, we are maintaining 320°. GH1559.

ATC GH1559, expect some delay, vectors for now, turn further right heading 350°. The thunderstorm should clear in the next ten minutes or so and we can bring you in behind it. Can you reduce speed to 200 kn?

P Roger. We'll slow down to 200 indicated, heading 350° and standing by for descent. GH1559.

Unit 14 Icing

2.04

This is a picture from the rear of what looks like a Jet Blue Airbus. It's on the ground being prepared for departure during winter operations in a snowy mountainous area. There's snow on the ground which looks as though it has been cleared from the taxiway. Clearly, while the aircraft was on the ground, meteorological conditions weren't ideal. It was possibly snowing, and because the wings and airframe were cold, this attracted the precipitation which has frozen. The wings are being sprayed with de-icing fluid in order to remove any ice deposits on the surfaces, particularly on the lift surfaces. The wings are being sprayed by a truck with special roof-mounted spraying equipment. The wings will be coated with an anti-icing coating once the ice has melted. I guess the aircraft is at the designated de-icing facility at the airport.

2.05

The most severe icing encounter I've ever experienced happened once when I was doing mountain flying in a Dash 8-200 model. It was –8°. This is the magic temperature. We started picking up super cooled large droplets at FL220. Within that first minute we had accumulated so much ice we had lost 15 kn. I could barely see out my left window at the boots and propeller.

In my experience, if you lose your windshield in the dash, it shows the ice is getting behind the de-ice equipment. I had the ice systems set at maximum and I lost my windshield completely. The airframe was vibrating and shaking violently and I knew we couldn't climb out of it in time. We requested lower and when ATC cleared us I dropped the props to 1,200 rpm, switched off the autopilot and dove down at 4,000 ft per minute.

We finally broke out of IMC at 11,000 and ATC wanted us to contact the airport in sight, but I told them we needed to fly for a bit and get lower to melt all the ice as I couldn't see out my window to land.

So, before we move on, have any of you had an icing experience?

2.06

P1/2 = pilot 1/2, C = controller

P1 Mayday, Mayday, Mayday. Varburg approach. Dornier 28D. Altitude 8,000. Descending.

C Mayday 28D. Say again.

P1 Mayday, Mayday, Mayday. 7,200. Descending. Cannot control the aircraft Dornier 28D.

C 28D. Roger Mayday. We have emergency services standing by in the area. Varburg airport is about five miles north-east of you.

P1 6,500. I'm just getting some control now. I'm indicating 80 kn. I'm trying to maintain airspeed. Mayday 28D.

C 28D. I show your ground speed as 160 kn. Maybe your pitot tube is frozen up?

P1 I'm in the clouds, altitude 6,000. Heading 040°. I have control again now, but had to dive because we lost all airspeed with no warning, 28D.

C 28D. Roger.

28D. Radar shows more showers to the north-east of you. I don't know what the temperature is, but you might pick up some more icing.

P2 United 883. Overhead Talsi. Passing altitude 5,000 ft in the descent. Temperature –2. –5 at 7,000. We do have some snow in the clouds.

C United 883. Did you pick up any icing on the descent?

P2 Affirm. United 883.

C United 883. Roger. Descend and maintain altitude 4,000 ft. Cleared ILS approach runway 04. Thanks for the report.

P2 Cleared ILS approach runway 04. United 883.

C Mayday 28D. There is a report of icing conditions to the east of you at 5,000. State intentions.

P1 I'd like to proceed to Varburg. I've got the boots and heat on, and … it seems to be OK. 28D.

C Mayday 28D. Readability 2. You might have ice on your antenna.

Unit 15 Storms

2.07

We have a large commercial aircraft, a 747, in what appears to be the landing phase of flight on a pretty miserable, dark evening. The main gear appears to be partially extended, and it has its landing lights on. Speaking about the meteorological conditions, we have convective storms producing fork lightning, dense clouds, which the pilot would have to avoid; and there are possibly updrafts and squalls to avoid, and crosswinds. The rudder, the yaw directional control, would need to be controlled automatically or perhaps very carefully manually operated, to keep the aircraft in line with the runway prior to landing. Visibility may also be poor, so all together the conditions look quite challenging for the flight crew. The aircraft is approaching from right to left over a body of water, perhaps a river, and there are hills on either side of the water. In the distance is what looks like a large city with a lot of high rise buildings, possibly in North America.

2.08

I = interviewer, P = pilot

I What's it like to fly through a storm?

P Actually flying into a storm is pretty nasty for the passengers and can be pretty scary for us. Flying in stormy conditions is always a challenge, but when you get active storm clouds at high altitudes, when there's uplift and moisture in the clouds, it's really tough.

I If you can't fly through them, do you fly around them?

P Yeah, wherever possible. Flying through storms does happen, but I think most pilots would agree that it is pretty unusual to take an aircraft straight into a storm cell.

I What do you do when you're faced with storms?

P If there is a line of storm clouds to fly through, you usually go for a gap in the line. We have a radar on board which senses water droplets, so we can see storm activity up ahead and plan for it. When visibility is poor, or you are flying at night, the radar is especially important. The problem is, the radar only senses water droplets. It can't see turbulence, so even if you fly around a storm, it could still be a bumpy ride.

I We know bad weather causes a lot of delays for airlines. Are storms particularly disruptive?

P Yeah, weather is usually in the top three reasons for delay. I once had to circumnavigate a large area of showers over the western Pacific which was almost 300 nm out of the way. Definitely the longest diversion I ever had to make.

2.09

P = pilot, C = controller

P Kindat tower. CD413. Reporting windshear at 800 ft. Airspeed loss 25 kn with significant port drift.

C CD413. Roger, continue approach.

P CD413. Negative, going around.

2.10

P = pilot, C = controller

P Buzzard 291. … uh … we, er, we think we've had a lightning strike on the port side.

C Buzzard 291. Roger.

P According to met we didn't expect any thunderstorm activity. Do you have an update on the weather? Buzzard 291.

C Buzzard 291. Stand by.

2.11

P = pilot, C = controller

C Ocean 452. Climb and maintain altitude 10,000 ft on altimeter 29.89. Fly heading 270°.

P Climb and maintain altitude 10,000 ft altimeter 29.89 on heading 270. Ocean 452.

Ocean 452. Request higher or a new heading for immediate weather avoidance.

C Ocean 452. Standby.

P Ocean 452. We must turn immediate right heading

350°, encountering intense weather showing on that westerly heading. There feels like a lot of Charlie Bravo activity around here ...

2.12

P = pilot, C = controller

P Citylink 682. Severe turbulence at FL350. Request lower.

C Citylink 682. Descend FL330.

P Descending to FL330. Citylink 682.

C Citylink 682. How are your conditions now?

P Still moderate chop. We've experienced some severe jolts. No injuries. We've spoken with maintenance, and we'd like to divert to Southampton to get the airframe checked please. Citylink 682.

Progress test 3

2.13

This image is of a United States aircraft in blue and white colours with a large American flag on the tail of the aircraft. It is stationary on the apron and it is obviously a government aircraft. A number of people are standing by the wheels of the aircraft and there is an empty government vehicle that has the back open, that looks like it is either about to unload or it has already unloaded some fairly secure or important baggage or freight into the aircraft itself. The reason I say that it is important is because in the foreground there are three prominent security guards each with an Alsatian dog. Two men and one woman. They are dressed in military uniform, shirt sleeves rolled up and peak caps. One of the men is wearing sunglasses. The dogs are on a short lead, each of the leads is a metal chain, and they are walking from right to left. Interestingly I can't see any other guards at all. The air stair door is open for the crew at the front of the aircraft. There is very little detail of the airfield.

2.14

Good morning. We've already looked at delays due to technical difficulties but today we're going to focus on the weather. Bad weather causes far more delays than any other factor.

Commercial aircraft have a lot of restrictions and rules about operating in the vicinity of bad weather. Aircraft can't take off unless the visibility at the destination airport is forecast to be at or above a certain distance. Usually half a mile. Airlines take great care when bad weather is reported, because they want to prevent passenger injury. Two thirds of turbulence-related accidents occur at or above 30,000 ft. In fact 46% of all passenger injuries in flight are due to turbulence. This leaves airlines with little choice but to delay flights when bad weather turbulence approaches.

Although people think of the winter as being connected with bad weather it is usually spring and summer months which are the worst for bad weather delays. These months carry hot humid air, which produces dangerous thunderstorms, severe lightning and turbulence. In fact thunderstorms can contain just about every nasty aspect in one package.

The airport an aircraft is waiting to depart from might have perfect flying conditions but if the destination airport or the route has bad weather you may well have to delay the aircraft. During departure, you route the aircraft to a specific navigation point, the 'departure fix'. If thunderstorms or other bad weather are lingering around this fix location, or elsewhere along the route of flight, or even at the destination, then you have to prevent departures to the affected area.

So what procedure do you use to do this ...

2.15

P Dragey control. F634TG. Florie 23 altitude 3,500 ft estimating PRETE 32.

C1 F634TG.

P PAN PAN PAN PAN PAN PAN Dragey control. F634TG. Cirrus SR22. Loss of power. Request immediate diversion to Frine-Le-Bourg. Four miles northeast of Florie, passing altitude 3,000 ft, descending, heading 310°. Two persons on board.

C1 F634TG. Dragey control. Roger PAN. Frine-Le-Bourg is nine miles to the east of your position. Turn right heading 080°.

P Right, heading 080°. F634TG.

F634TG. Declaring an emergency. We've lost all engine power now. I say again, we have no engine power. Passing altitude 2,600. Descending. Heading 050°.

C1 Roger MAYDAY. The emergency services have been alerted. Frine-Le-Bourg is now one o'clock, seven miles. Contact Frine-Le-Bourg on 124.050.

P 124.050. F634TG.

Frine-Le-Bourg tower. F634TG. We're six miles east your field, altitude 2,100, descending, heading 080. We have no power.

C2 F-TG. Frine-Le-Bourg tower. Roger MAYDAY. We are ready for your arrival.

P Altitude 1,600, descending. What is the closest suitable terrain for a forced landing? F-TG.

C2 F-TG. You have unwooded fields, one o'clock, four miles. Frine-Le-Bourg is now 12 o'clock, five miles.

P Altitude 1,400. I don't think we have enough height to make it over the water. We may put it down in the lake. F-TG.

C2 F-TG. Roger. We are in contact with the sailing club on Lac de Frine. Frine-Le-Bourg is now 12 o'clock, four miles.

P Altitude 900. F-TG.

C2 F-TG. A right turn, heading 100°, will take you closer to rescue vessels.

P Roger. 100°. Sailing club in sight. Preparing to ditch. F-TG.

C2 F-TG. Roger. We are advised there is no activity on the lake. Surface wind calm.

Unit 16 Depressurization

2.16

This is a picture of a 737 on the ground, obviously, and it has suffered a serious problem. The top half of the fuselage has blown away. It probably happened in the air. It looks more like a pressurization failure than a result of sabotage. The pilot seems to have got the aircraft on the ground safe and sound and I'd imagine the passengers, other than those in the damaged area, were evacuated OK.

We don't know anything about the weather conditions or geographical surroundings other than there are a few hills in the background. It looks very much as if it's suffered a major structural failure and been safely landed. I guess it is now being investigated to see what recommendations can be made to the authorities and manufacturer.

The unfortunate thing is that anybody sitting in that area would have probably suffered major injuries if not fatalities. There is a vehicle in the foreground near the aircraft just in front of the right engine. It has some sort of emblem on the side but it is difficult to make out. The aircraft has two stripes running along the fuselage which have been interrupted by the missing section

2.17

Yesterday a passenger flight en route to Kiev had to make an emergency landing in Stockholm when an oxygen cylinder smashed through the skin of an aircraft.

The Boeing 747 jumbo jet was flying from Oslo to the Ukrainian capital with 384 passengers and 18 crew on board. It was cruising at 30,000 ft when the aircraft experienced a loss of cabin pressure. Passengers and crew report hearing a loud bang prior to the loss of pressure which was probably the cylinder exploding. The aircraft was forced to make an emergency landing at Stockholm where several of the passengers were treated for shock.

An immediate inspection revealed a rupture in the fuselage measuring one and a half metres. Investigators haven't ruled out terrorist activity although no traces of explosive residue were found. Officials have said the most likely cause is failure of one of the seven oxygen cylinders found on this craft. The pressure from the failed cylinder sent it through the passenger cabin and out of the fuselage, narrowly missing a number of passengers.

In the past, external causes have resulted in blown cylinders. However, the faulty cylinder in this case hasn't been recovered yet. The exact cause of the explosion is unknown, and it is likely to stay that way until investigators are able to find the cylinder.

2.18

CP = co-pilot, T = tower

CP London information, Sunbird 404, we're inbound for landing at Exeter. We're just, ah, 30 miles south-west of the BHD VOR, descending out of 15,000 ft, and we have rapid depr ... we are unpressurized. Declaring an emergency …

T Sunbird 404, the wind at Exeter is 040° at 15 kn. QNH is 1020 millibars and they are using runway 08. Your transmission is breaking up, please say again your call sign, is it 404? Is that correct? Or 2405?

CP 404. Sunbird 404.

London we request straight-in approach from 11,000 ft. Request clearance for a priority landing runway 08. Also request full emergency services.

T OK, services on their way. Squawk 7700, can you switch to frequency 128.975 ?

CP Sunbird 404. Negative. We would like to work this frequency. It looks like we've lost a door. We have a hole in this, ah, left side of the aircraft.

Ah, we're gonna need assistance. We cannot communicate with the flight attendants. Ah, we'll need assistance for the passengers when we land.

T OK, I understand. We're going to have all emergency services. They are in place and are ready for your arrival.

CP Roger. Passing through 9,000 ft. Are we clear to land runway 08?

Unit 17 Passenger problems

2.19

In the first picture, there is a man who is walking down the aisle of an aircraft cabin between the seats with an aggressive look on his face. He has black hair and is wearing a shirt. There are two other passengers in the picture, one man who is standing behind, and an older man in front, on the left side of the picture, who is sitting in his seat. There is a woman too, who appears to be dressed in uniform. She is perhaps a flight attendant. All three people look concerned as if they are afraid of the man or as if he might do something malicious.

In the second picture, the man has entered the cockpit and has attacked the captain who is seated at the controls. There is a struggle. The attacker has his right arm around the captain's neck and has the captain's head in a headlock. The captain is trying to stop the attacker strangling him, using his hands to pull away the attacker's arm. Behind the attacker is what looks like a member of the crew. He has his right arm around the attacker, and is holding the attacker's left arm, trying to pull him away from the captain.

In the final picture, things appear to be under control. Clearly, the male flight attendant wrestled the attacker to the floor and now the attacker is lying face down in the aisle of the cabin. The male flight attendant is restraining the attacker by kneeling across the attacker's back and pulling his right arm behind his back. There are two female flight attendants, one kneeling in the aisle behind the attacker and the other is stood behind her. I can also see a passenger in her seat on the right-hand side who looks a bit worried.

2.20

NA = newsroom anchor, R = reporter, P = pilot

NA A Western Pacific flight makes an emergency landing in Seoul after a passenger declares that the aircraft is falling apart. News East's Kate Shamayoto is at the airport with more details of this strange case.

R You just don't expect things like this to happen. All of a sudden, a passenger in the very last row starts yelling that the aircraft is going to break up. Flight 76 was on it's way from Busan to Beijing when it was forced to make an emergency stop in Seoul after flight attendants couldn't get the man under control. The aircraft landed at around 6.30 last night.

NA I understand the flight attendants had some special help on board. What can you tell us about that?

R Apparently there was quite a struggle and when the passengers saw that the attendants were struggling to control the man they jumped in to help. They said they had some difficulty getting him onto the floor, but no one was hurt. The passengers helped to hold him down while his ankles and wrists were handcuffed. When the flight eventually landed, Korean police took the man away. So far we've not heard what's going to happen to him.

We spoke to the flight crew yesterday evening. This is what the flight's captain had to say:

P He had a drink at the origin airport. He was on medication but didn't take it. Perhaps a combination of not taking the medication, the drink and the altitude affected his usual behaviour. We diverted because we felt he was a threat to the safety of the flight.

R Back to you in the newsroom.

2.21

P = pilot, C = air traffic controller

P Al Shaqiq approach. Indair 453. Good afternoon.

C Indair 453. Al Shaqiq approach. Good afternoon. I understand you are looking for a diversion and immediate arrival for Al Shaqiq.

P Affirm. That's correct.

C Indair 453. Plan a visual approach to join left base for runway 27. Wind 220° at 9 kn.

P Visual for 27L. Indair 453.

C Indair 453. Roger. Confirm status.

P He's unarmed now. The cockpit is secure. We've got about five people holding him down. He's struggling. Indair 453.

C Indair 453. You will be number one for the airport. Speed at your discretion.

P Say again wind? Indair 453.

C Wind 220° at 9 kn.

P I'm sorry. With that wind we're too heavy. 27L is not going to work. Request 22L. Indair 453.

C Indair 453. Roger. Turn left heading 020°, vectors for a left downwind runway 22L.

P Turn left heading 020°. Indair 453.

C Indair 453. Confirm intentions after touchdown.

P We'd like to go to a company gate, if possible. We haven't coordinated with them yet. Indair 453.

C Indair 453. Would you like me to coordinate with operations?

P Affirm. Indair 453.

C Indair 453. After landing proceed to north cargo 5. Is that OK with you?

P North cargo five. Request progressive taxi after landing. Indair 453.

C Indair 453. Wilco, that will be with ground on 120.1.

Unit 18 Bomb scare

2.22

OK we've got two pictures here. Both taken in the same place looking at a departure lounge, maybe a Dutch one at Gate F. There's a sign saying 'Vertrek'. Maybe that's Dutch. I don't know. The picture on the left has a machine which looks like it's used to examine suspicious packages. It's remote controlled. There's an operator behind the machine with a hand-held remote control device. The machine looks like it could pick things up, it's got a kind of claw on the end of an arm. It's a tracked vehicle with a number of wheels. The right-hand picture looks like it was taken at the same place but taken from a slightly different angle. In this one we see an individual in a protective suit who looks like he could be a bomb disposal expert. He's got a clipboard in his left hand and is wearing a helmet with the visor down. He's not wearing gloves, which is a bit strange. There doesn't seem to be anyone else around so I presume the departure lounge has been evacuated, maybe there was something suspicious in there, although there is no sign of anything. The gentleman is leaving the departure lounge, I think he's probably been looking at something in there rather than going out to find something else.

2.23

Latest news on the attempted hijacking of a Greek jet has led to conflicting reports from the airline and passengers. Yesterday we were told a middle-aged man attempted to hijack the jet and re-route it to Germany, threatening to blow it up if his demands weren't met. The man, who hasn't been named, demanded that the flight, from the Greek resort of Corfu, be taken to Munich in Germany. He was arrested after the aircraft reached its original destination of Kharkov. The would-be hijacker, in his early 50s, made the demand in a note to the pilot of the Airbus A-320, which was carrying tourists returning from the Mediterranean resort. The offender got out of his seat and handed the note to a flight attendant saying he had a bomb. The man then attempted to walk towards the cockpit. At this point he was overpowered by several passengers. The prosecutors' spokeswoman did not name the man but said he was from a Central Asian region. This contradicts the statement by a Greek official that said he was a German national. The man did not have explosives and investigators are still seeking to determine whether he was drunk.

However some passengers are questioning official reports. They said they were on the flight and they didn't notice anything unusual. They denied reports the man was drunk and said they did not see anybody fighting with passengers or cabin crew. In fact quite the opposite. The passengers reported the whole flight was calm and they didn't notice anything unusual. It was only when they landed and saw armed police near the aircraft that they realized there was a problem. Some of the passengers had relatives waiting to meet them. They too saw the security personnel moving toward the aircraft and the passengers began to get worried telephone calls on their mobile phones.

An unconfirmed report has suggested that it was just an overreaction by a member of the cabin crew who was being harassed by the passenger.

2.24

P = pilot, ATC = air-traffic controller

ATC Fairair 354, this is Seaforth Control we have had a report of three suspicious passengers aboard your aircraft who all boarded in the last minute and all have passport numbers in sequence. All are male.

P Roger. Do you have seat numbers 354?

ATC They are sitting together in row H seats 2, 3 and 4.

P Seaforth Control. We have a problem. There are three armed passengers standing in the aisle. One is carrying what he says is a bomb and they are demanding I open the cockpit door. Otherwise they will blow up the aircraft. Fairair 354.

ATC Roger 354. What are your intentions?

P I have briefed the purser and the security marshals that I intend to put the aircraft into negative 'g'. This will not be expected and it will cause the standing passengers to fall down. When this happens the purser and security marshalls are in a position to overpower them. Fairair 354.

ATC Seaforth Control. Roger. Keep us informed.

P Wilco 354

P Seaforth Control, the manoeuvre was successful. The three passengers are restrained and the package is not a bomb. Request immediate diversion to Pembroke for a radar vectored straight-in approach for an ILS approach runway 34, Fairair 354.

Unit 19 Take-off incidents

2.25

Here we have a picture of an Airbus A340 taken from the right side of the aircraft. I don't know if it's landing, or taking off. I can see that it is just airborne but the main gear wheels are just a couple of feet above the ground. It could be an early rotation or an over-rotation and it looks like its about to scrape its tail on the runway. The tail is very close to the runway surface. Perhaps they are teng the aircraft, because it's not in an airline colour, it has manufacturer's markings. It could also be a test because the attitude is very strange; it's a very high nose-up attitude. It's hard to tell, but it doesn't seem that there are any flaps, so maybe they are doing a flapless take-off, which might explain why it's not getting airborne.

2.26

The crew did a thorough pre-flight briefing for a reduced-power take-off on runway 16, and the first officer was to be the handling pilot for the departure. During the take-off roll, the captain called for the first officer to rotate, but the aircraft was slow to respond with a nose-up pitch. The captain called again to rotate, and the first officer applied greater nose up command. The nose of the aircraft then raised, and the tail made contact with the runway surface. The captain then selected TOGA, or maximum take-off thrust, the engines responded immediately, and the aircraft lifted off shortly afterwards.

An inspection of the runway and the overrun areas identified multiple contact marks. The tail of the aircraft made contact with the runway at three locations. After leaving the stopway, two scrape marks were identified in the grassed area.

During take-off the aircraft also made contact with ground infrastructure. It clipped a runway 34 high-intensity centreline strobe light, and the left main landing gear inboard-rear tyre hit the runway 16 localizer antenna, the impact of which disabled the localizer function.

Significant damage to the aircraft included abrasion to the rear lower fuselage and damage to the rear pressure bulkhead. The abrasion actually wore through the full thickness of the skin. The inspection panel for the waste water drain point came off, and that panel was later found near the end of the runway.

2.27

P1/2/3/4 = pilot 1/2/3/4, C = controller

C Westair 886 line up. After the landing DC9.

P1 Line up after the landing DC9. Westair 886.

P2 Tower. Skybird 451. There's quite a bit of fuel on the right side of my taxiway.

C Skybird 451. Roger. We'll send some to clear that up.

P3 Azure 525. We could see a leak coming out the top of the right wing of the Westair.

P4 Easy 775. It looked as if it was trailing a white vapour on the starboard side.

C Westair 886. Do you copy this?

P1 Yes, we're looking at it right now. Westair 886.

2.28

P1/2 = pilot 1/2, C = controller

C Flightstar 433. Cleared for take-off runway 34, surface wind 320° 10 kn.

P1 Cleared for take-off runway 34. Flightstar 433. Stopping. Flightstar 433.

C Flightstar 433. Roger, do you have a problem?

P1 Flightstar 433. Affirm, there's debris over the runway. We are unable to take off.

C Flightstar 433. What can you see?

P1 It looks like construction material, like stones, all over the runway here. Flightstar 433.

C Roger. Hold position.

Taurus 823. Go around. I say again, go around. Acknowledge.

P2 Going around. Taurus 823.

2.29

P = pilot, C = Controller

P Goose 506. Cancel request to depart runway 25R.

C Goose 506. Roger.

P We'd like to return to the gate please. Goose 506.

C Goose 506. Right turn on taxiway B and hold short of C8 please.

P Right on B and hold short of C8. Goose 506.

C Goose 506. Can you contact your company and find out if you can go back to gate 48? They've parked an aircraft adjacent to where you were and I I'm not sure if there's wingtip clearance.

P We're contacting them now. Goose 506

C Goose 506. Say reason for aborted take-off.

P We had an indication of smoke at door 5. Goose 506.

C Goose 506. Roger.

Unit 20 Lost

2.30

This picture is obviously a maritime picture out on the ocean, probably not very far out because the sea is quite calm. The ship in the picture is very much maritime-aviation related. I don't think it's a full aircraft carrier and it might be one of the helicopter support vessels of the navy. It looks quite modern and is being attended to by several flotilla boats, again small boats indicating it's near the shore.

The aircraft flying past is a Nimrod which does maritime reconnaissance and search and rescue and also high level reconnaissance for the military in remote areas. The aircraft is quite low, probably only about two or three hundred feet above the sea, and is in a left-hand turn. I would imagine this is a display fly-past. The whole picture could well be part of a display.

As for the ship itself, I don't think it's underway as there is no bow wave. It seems to be at anchor. The wind is slight because there is a flag on the front that has got a slight wind. There is a fairly calm sea and in the foreground it looks like there's a lifeboat crewed by people in lifejackets. It's going quite fast towards the ship and on the right hand side there's a little dinghy.

2.31

We were en route from Brussels to Vittoria and the flight engineer had just brought us coffee. Paris gave us a radar heading, and I placed my coffee on the footrest at the bottom of the instrument panel, then reached down to turn the heading bug on the CDI. As I did so, my hand caught the coffee and knocked the cup over. The coffee spread across the GPS, running between the buttons, and the screen started blinking. An error message appeared, then the screen went blank, flickered briefly and then went blank again.

I switched the GPS off before it started smoking or popping circuit breakers. Paris inquired whether we were on the heading, and I turned the heading bug. Bob, the co-pilot, pulled out the high altitude chart. On this the VOR and reporting points were in print so small that they were almost impossible to find. The charts were also not necessarily aligned to magnetic north, making it difficult to work out which direction you were going in, let alone where you were.

'2434, direct Belen,' Paris said. I turned right slightly, guessing which way it must be. It was more than 200 miles away, and not even on the same chart. Normally I'd have just punched it into the GPS.

Paris asked us for confirmation '… 2434, confirm routing direct Belen?' We asked for a heading. They told us to turn right ten degrees and after ten minutes or so we managed to find where we were on the chart. We stayed on a radar heading until we picked up Bilbao VOR. We reached our destination without further difficulties and I made a mental note to add cups of coffee to the list of things to watch out for on the flight deck.

2.32

P = pilot, ATC = air-traffic controller

P Starfire 2416D we are, ah, critical on fuel. Request vectors to, uh, Humber Field.

ATC Roger Starfire 16D, turn right, right turn heading 200°.

P Right turn to 200°, 16D.

ATC Are you declaring a fuel emergency?

P Affirm. Starfire 16D.

ATC Starfire 16D roger, turn further right heading of 220, maintain altitude 3,000 ft.

P 220, 3,000 ft, 16D … ah ... my instruments don't seem to be working here. Can you vector us low enough to see the airport?

ATC Roger 16D, uh, my minimum vectoring altitude right now out there is only 2,700 ft … you can descend and maintain 2,700 now.

P Descend altitude twenty seven hundred, 16D.

ATC 16D affirm, descend and maintain 2,700 ft. Confirm you are declaring a full emergency and stand by for further descent to altitude 2,000 ft.

P Roger current heading indicated is 260° 16D.

ATC Sir, fly heading of 240, 240° and descend now to 2,000 ft Humber altimeter 29.94.

P 2,000 ft on 29.94 and left to 240° 16D … uh, I appear to have a problem with my compass.

ATC 16D. Roger. Your present heading is good. This will be a no-gyro surveillance approach to Humber Field. I will tell you to start and stop all turns, confirm you can maintain 2,000 ft altitude?

P Affirm and thank you sir, 16D.

ATC 16D turn right now.

P Turning right.

ATC Continue right turn.

P Wilco. 16D.

ATC 16D, stop turn now.

P Roger. 16D.

ATC 16D, the airport will be, uh, twelve o'clock at 4.5 miles.

P Ahead in 4.5 miles, I'm looking, 16D.

ATC Roger 16D, descend now and maintain 1,400 altitude.

P Descend 1,400, 16D.

ATC 16D affirm and Humber Tower advises clear to land on 27L.

P Cleared land 27L, 16D. Distance to the airport?

ATC 16D you are four miles from the airport, turn right, I say again, turn right now.

P Uh, ok, turning right … ah … we are just visual now at 1,400 ft … er, stand by … yes, runway in sight for 16D. We're heading straight for the threshold.

ATC 16D roger, continue visually, you are cleared to land runway 27L. Contact Humber Tower now 120.5 unless you just want to stay on this frequency.

P Negative will contact tower on 120.5. Thanks for your help. Starfire 16D.

Progress test 4

2.33

This image is of an F61 helicopter, a rescue helicopter. It's hovering at about 30 m above the sea. It has an RAF roundel on it with 'rescue', written on the front and the side of the aircraft. It's quite heavy because the blades are curved upwards. There's very little wind. In the background is a headland with what looks like a radar station, a white low building. But it's out of focus and it's difficult to know what it is. The cliffs of the headland go down to the sea. On the left side of the background you can see a few isolated rocks and the waves are no more than two or three feet. It's a nice gentle day, cloudless sky, probably quite hot which is why the aircraft might be struggling a bit. There's no other activity at all. There's no operator of the hook visible and no obvious activity going on in the aircraft at all. The aircraft is a fully-equipped SAR with a radar dome on the top. It's probably doing a practice exercise

2.34

I = interviewer, P = passenger

I Can you describe the moment you realized something had first gone wrong?

P All of a sudden there was an explosive bang sound and the aircraft lurched very suddenly to the left. It dropped a little bit and there was dust and a strong wind coming in. It depressurized significantly and our ears really hurt. It all happened very quickly. People were crying and shouting, it was a very stressful situation

I What were you thinking at the time?

P I was thinking that a window had popped out or a cargo door had blown and then the oxygen masks dropped down.

I You sound very calm. Did you think this was it?

P It's strange the things that go through your head. You're 30,000 ft in the air and there's nothing between you and the ground. You just hope everything is going to be OK. We're just really grateful we got down safely.

I Absolutely. How much information did you get from the crew and how long was it before you were safe on the ground?

P The cabin crew immediately ran to their seats and strapped themselves in. Nobody really knew what was going to happen. There was only one announcement to put your seatbelt and masks on and stay seated. It probably took about 10 to 15 minutes until the pilot got us down to a low enough altitude so that we didn't have to use the oxygen masks.

I Gosh. What was the moment like when you touched the ground?

P Well. It was a relief. We all gave a round of applause. After seeing the gaping hole in the aircraft as I got off I realized how lucky we were!

2.35

P Stremmen approach. D-GHVT.

C1 D-VT. Stremmen approach. Pass your message.

P Cessna 172 from Dortfeld to Stremmen VFR 3,000 ft. Regional QNH 1012 estimating zone boundary 52, Stremmen 2002. With information Juliet D-VT.

C1 D-VT. Cleared from the zone boundary to Stremmen VFR at 3,000 ft. QNH 1010. Traffic information. There is a north-westbound CRJ, 2 o'clock, 4,000 ft IFR estimating zone boundary 53.

P Maintain 3,000 ft. QNH 1010. Traffic ahhh … not in sight. D-VT.

C1 D-VT. Traffic is passing over you now, right to left, slightly above.

P Negative contact. D-VT.

C1 D-VT. Roger. Report aerodrome in sight.

P Wilco. D-VT.

P Aerodrome in sight. D-VT.

C1 D-VT. Contact Stremmen tower 122.285.

P Stremmen tower 122.285. D-VT.

Stremmen tower D-GHVT. Good evening we are a Cessna 172. Eight miles east. Altitude 3,000 ft QNH 1010. Request straight-in approach runway 08.

C2 D-VT. Cleared straight-in approach runway 08. Surface wind 040°, 5 kn. QFE 1006. Report final.

P Cleared straight-in approach runway 08. QFE 1006. Wilco. D-VT.

C2 D-VT. Do you have your landing lights on?

P Affirm. D-VT.

C2 D-VT. Negative contact. Say position.

P Five miles east of Stremmen, estimating Stremmen 2002. Height 2,000 ft. Field in sight. D-VT.

C2 D-VT. We can't see you. What are you flying over now?

P It's getting pretty dark but ... we're over a main road, with a built-up area at my 10 o'clock. D-VT.

C2 D-VT. We believe you are approaching Draburg airfield. Contact Stremmen radar on 128.850 for assistance.

P Stremmen radar on 128.850. Sorry about that. D-VT.

Unit 21 Aircraft breadown – mechanical

2.36

There's a four-engine jet aircraft in a very clean and tidy hangar. There are maintenance engineers doing an inspection of number three engine. The fan cowlings are open and there's somebody in the intake inspecting the fan blades using a very bright light. It could be a new engine being installed, but there is no lifting equipment, so it looks more like a regular maintenance inspection. There's what looks like a computer screen on the table which looks as if it's connected to the engine, and this indicates that they are doing some sort of diagnostic tests. The coloured lights are strange, maybe to detect particular problems, I don't know. It could be that they have fed fibre optic cables into the back end of the engine to inspect the turbine blades.

2.37

P1/2/3 = pilot 1/2/3

P1 Hey Jim, take a seat.

P2 Hello guys.

P1 Morning.

P3 Everything OK?

P2 Yeah, fine. Slow start this morning. That APU is still inoperative.

P3 Haven't they fixed that yet?

P2 No.

P1 We had to fly six legs last week without auto pilot.

P2 It's a pain. I have complained about it, but nothing changes. They get angry with me for complaining!

P3 That reminds me of DB.

P2 Who's DB?

P1 We had this old 737 captain years ago, a guy we called DB. He had thousands of hours and when they started introducing the new fleet he gave up flying and became a dispatch officer at the company. One morning a captain came to the briefing counter to pick up the release for his flight and he noticed that the autopilot was inoperative. When he started complaining about it loudly in the office, DB looked at the captain and said 'I flew 12,000 hours without an autopilot during the war and you can't even fly to Rome and back!'

P2 What did the captain say?

P1 Nothing. He signed his dispatch release, and without saying another word, he quietly walked out of the office.

P3 Yeah, I remember that! I don't think that captain complained to DB again.

P2 I once flew with an ex air-force captain who refused to take the aircraft because there was no lemon for his tea! We had an aircraft full of passengers who had to wait while the caterers found him a lemon.

P1 Lemons? Are they on the MEL?

2.38

P = pilot, C = Controller

P Chervitzna tower. Flagline 46. On runway 26. We're going to have to hold position until we've sorted this out.

C Flagline 46. Chervitzna tower. Roger.

All Stations. Chervitzna tower. Runway 26 out of service due disabled aircraft. All traffic use runway 34 until further notice.

Flagline 46. From the tower it definitely looks like both the covers that close up after the wheels go up … it looks as though they are hanging down, dragging on the pavement.

P Roger, thank you. Flagline 46.

C Flagline 46. Could we organize for a tow for you?

P Negative. We think if we can get the doors lifted up and locked then we will taxi the aircraft, but we can't move until then. Flagline 46.

C Flagline 46. Do you want to disembark your passengers?

P Negative. We'd like to wait and disembark the passengers at the gate. Flagline 46.

We need to get the main landing gear pinned. We have pins with us and we can throw them out of the window. Do you have anyone trained to fit them, or is there maintenance on the field that can do it? Flagline 46.

C Flagline 46. We're checking if a mechanic is on site for you. Stand by.

Flagline 46. There is a maintenance mechanic for your type available. He should be with you in a few moments.

P Thank you. Flagline 46.

Unit 22 Aircraft breadown – electrical

2.39

This is a picture of an avionics engineer doing some fairly intricate work on a bank of avionic instruments inside an aircraft. The internal lights of the aircraft are on. He's wearing a T-shirt and jeans. He's wearing a watch on the left hand and his head is tilted back looking through his glasses. He's grimacing slightly as if he's doing something fairly delicate with the bank of instruments in front of him.

His two hands are upwards and it's difficult to see but in his left hand he's holding something and probably trying to insert it in to one of the banks of instruments. In front of him is a little tray sticking out from the instruments on which looks like an MP3 player. But it's probably some sort of electrical instrument recording something that he's doing on the electronics itself. There's a tray or a trolley behind him to his left which I suspect may be a container for his tools.

Apart from that it's a very ordinary picture of an engineer working quietly by himself in an aircraft

2.40

So today I want us to focus on some of the common electrical problems that affect aircraft. Now often, it's pilot error in responding to a problem that causes more difficulty than the problem itself and today we're going to look at some examples. These reports are quite brief and don't have a lot of detail but we can get the general idea.

Here's a report about a Cessna 182 which states, 'Electrical problem. Overran runway returning. Alternator field wire loose. Struck runway light'. This happened during daytime using VFR. Could the pilot have handled the situation better? We don't know. But it is a bit strange that with such good visibility the pilot hit the runway light.

The next incident is even more common. An air taxi 'departed alternators off', this ended up with the batteries being drained and he had to lower the gear manually, unfortunately they weren't locked down, and the result was a folded landing.

The next report we're going to look at shows another alternator problem, this time a failure en route. In this case the pilot was so busy trying to sort the alternator out that he landed gear up.

And in our last example while descending from altitude a pilot did 'a long cruise descent with the engines at a very low power output'. He was unaware that the aircraft had generators instead of alternators and that the engine speed on the descent was below the speed required to keep the battery charged.

So let's have a look at these reports in a bit more detail.

2.41

ATC = air-traffic controller

ATC G-BGUA this is Deauville Approach. Do you have any electronics at all?

ATC G-UA. I think I see you on radar. Believed to be tracking the coastline right now.

ATC G-UA. Are you able to give me your heading?

ATC G-UA. Are you able to give me a radio check? I believe I'm tracking you.

ATC G-UA. Nothing heard. If you want to go to Cherbourg airport they have lights. I'll watch to see if you turn that way.

ATC I got you loud and clear now. Can you see Mont St Michel? Dinard is an alternate. If you want to continue I'll try to get the lights turned on.

ATC G-UA, are you on a handheld radio right now?

ATC If we have to we'll ask another aircraft to turn on the lights. They stay on for about 15 minutes.

ATC G-UA, there is no known traffic to conflict in the vicinity. I'm going to pass you over to Rennes Approach on 124.9. Contact Rennes now.

ATC F-CP. Can you see traffic out there? A Skyhawk about 2,500 and descending to the south of you. You may see him but he has an electrical problem and may have no anti-collision beacon or strobes.

Unit 23 Volcanoes

2.42

This is an amazing picture of an active volcano taken from an aircraft. The volcano is conical in shape, with a central crater. It is erupting and there is a huge plume of thick volcanic ash rising from the crater to possibly several thousand feet into the sky, and being blown to the left of the picture. There is also some steam or smoke coming from the rim of the crater. The upper sides of the volcano are brown with ash or lava deposits and there are gulleys formed probably by previous eruptions. The lower slopes are covered with trees and there are some low-level clouds around the base of the volcano. In the distance there is more high ground, and it looks like a mountainous area. The sky is blue, and the volcano is lit by the sun, and judging from the long shadows, I would say that the picture was taken in early morning or evening. The situation is dangerous for flight and ASHTAMS or ash NOTAMS will have been issued to flight crews to warn them of the situation.

2.43

I'll open this seminar by talking about some of the major volcanic events that have affected aviation over the last thirty years or so.

In the early eighties, several 747s encountered ash in Indonesia. One aircraft lost all four engines and descended from 36,000 ft to 12,500 ft before engines were restarted. The aircraft diverted to Jakarta and landed safely but all four powerplants had to be replaced before it returned to service.

In 1989 a 747-400 with only 900 hours total flying time encountered an ash cloud in Alaska. Although it landed safely, the engines and many systems also had to be repaired or replaced, such as replacement of the aircraft environmental control system, cleaning of the fuel tanks and repair of the hydraulic systems.

In 1991, more than 20 aircraft encountered volcanic ash in the Philippines. This was the largest eruption of the past 50 years and created an enormous plume of ash, making it very difficult to predict where the ash was. Commercial and military operations were affected; one US operator even grounded its aircraft in Manila for several days due to thick ash fall.

An eruption in Mexico affected operations in the region in the late nineties. Although damage was minor in most cases, one flight crew experienced reduced visibility for landing and had to look through the flight deck side windows when taxiing. Mexico City airport was closed for up to 24 hours on several occasions as the volcano continued to erupt.

2.44

P1/2 = pilot 1/2, C = controller

P1 Asiana 687. Kraskut control. Do you have any reports of volcanic ash en route?

C Asiana 687. I have no reports of volcanic ash at your flight level.

P1 We have had a faint smell of volcanic ash for about three or four minutes now. Asiana 687.

C Asiana 687. Do you wish to change flight level?

P1 Negative. We'd like to keep FL11,600 m. Asiana 687.

C Asiana 687. Roger.

P2 Kraskut control. Astanaline 433. 110 km from SIBUT, FL10,600 m. Negative volcanic ash in our area.

C Astanaline 433. Thank you. And … uhh … Asiana 687. Say position where you experienced the volcanic ash.

P1 We detected smell between 130 km from SIBUT to 70 km from SIBUT. FL11,600 m. Asiana 687.

C Asiana 687. And can you describe the intensity?

P1 Light yellowy-brown haze. Visibility about 300 or 400 m. Asiana 687.

C Asiana 687. Do you have any idea which direction the cloud was moving?

P1 Ahh, direction of cloud movement was undetermined. At the time, wind was 050°, about 28 m/s. Asiana 687.

C Asiana 687. And just to confirm, you are now out of the cloud layer?

P1 We appear to be clear of the cloud layer at this time. Asiana 687.

C Asiana 687. Thank you for the information.

P1 My pleasure. Asiana 687.

Unit 24 Dangerous goods

3.01

This is a sign showing dangerous items that are prohibited on board aircraft. Passengers are not allowed to take these things on board, either in hold luggage or in hand luggage. At the top it says 'prepare for check in' and then below 'forbidden anywhere on the aircraft', and then there are drawings of different items in red circles with a red line crossing through them. The first three items are bottles. The first is a bottle of acid, the second is a bottle with a skull and crossbones on it and the word 'poison' below, and the third has a ball of flames which I guess indicates flammable or explosive liquids. The next three show fireworks, matches and a bottle saying 'bleach', I think. The final three show a torch, or flashlight if you are American, a canister saying 'gas' on it which looks like it is a camping stove, and finally, a fire extinguisher. It's the sort of sign that you see on the counter when checking in your luggage, and when preparing to go through security at an airport anywhere in the world. They use symbols that everyone can understand whatever language they speak.

3.02

Dangerous goods are articles or substances which can cause a risk to health, safety or to property when transported by air. Some of the more common types of items include such things as pesticides, petrol, acids, aerosols and bleaches. Maybe it's OK to store these items in your home or transport them in your car on the way home from the shop, because you know where they are and you know the possible dangers involved. At home, you might take precautions such as putting them in a high cupboard or a locked shed. You are careful to prevent someone swallowing or mishandling them. However, put them into the unfamiliar environment of an aircraft flying high in the sky – a place where they could be subject to severe atmospheric pressure and temperature variations, a place where there could be major vibrations – and many items behave in an unpredictable manner.

For example, in a recent incident, while unloading baggage the handlers noticed smoke rising from a suitcase. Investigation revealed that a quantity of book matches had caught alight. There have been several such incidents in recent years. Book matches can ignite when subject to the vibrations subjected to suitcases stacked in an aircraft cargo compartment. It can even happen when matches have been in pockets or briefcases.

The most innocent seeming goods can cause problems. Some dental supplies were being sent to Sydney. They included a glass container of 100ml of mercury. It broke during transport and leaked into the hold of the aircraft. Luckily it was discovered and cleaned up. If it hadn't it could have weakened the skin of the aircraft with terrible consequences

3.03

P = pilot, FA = flight attendant

FA Hi. We've got fumes in the cabin.

P What's the source?

FA We don't know where it's coming from. It's past the, ah, exit. I guess it's from the cargo hold. We've got the H_2O extinguisher.

It's a real bad smell. The floor is getting really warm.

P OK, now how far back is the floor getting warm?

FA It's about midway through to ...

P About where the landing gear might be? You don't see any smoke? It's just fumes?

FA Bad fumes. It's starting to hurt my eyes.

P OK. I'm going to get off the phone. Call me if anything important changes.

FA ... Captain it's me again, you've got a big problem back here, so I'm not sure if you … I'm not sure … The problem is, I don't know where the heat is coming from. It's coming up through the floor.

P Do you see any smoke?

FA There's smoke coming through the floor.

P OK, OK.

FA The floor is getting very hot …

P OK. We're number one to land. We'll be on the ground soon. Prepare for an immediate evacuation.

Unit 25 Collisions

3.04

Here there are two North West Airlines aircraft, what look like an Airbus and an MD80. The two aircraft seem to have collided, so it looks like the scene of an accident on an airfield, close to stand G12. It appears the MD80 has taxied into the Airbus, or the Airbus has been pushed back into the other one, but there's no tug there, so I don't know. The MD80 seems to be lodged under the Airbus. It looks like the trailing edge of the right wing of the larger of the two is slicing into the top of the fuselage, above the cockpit area of the smaller one. The underside of the Airbus empennage appears to have made contact with the MD80 as well. Fire service and attendants are present, and it looks like they've got breathing equipment and suits on, and there are a number of people and ground staff standing around assessing the situation. I guess there are no passengers on board because the forward chutes on the far side of the Airbus have been deployed, and there are step ladders next to the MD80. The surface looks like it is covered in foam, or it is slippery or icy. I'm not sure. The photograph was taken at night or very early in the morning. The area is brightly floodlit.

3.05

C1/2/3 = controller 1/2/3

C1 Did you hear what happened at Heathrow yesterday with the A340 and the 747?

C2 Oh, where the Sri Lankan taxied into the BA?

C1 Yep. Caused a few problems, but there wasn't too much damage, no injuries.

C3 I heard that a bunch of passengers refused to fly on the 340 today because the wing tip was missing.

C2 Eh? I thought it was the Sri Lankan airbus's right leading edge that struck the winglet on the BA, not the other way around.

C1 That's right. The BA was stationary and the Sri Lankan was passing to the left.

C3 Couldn't the 340 fly easily without a wingtip?

C1 Yeah, I thought that was possible.

C3 Yes it is, as far as I know, An A380 flew after one of its tips clipped the hangar gate at Bangkok, but they removed both wingtips and the aircraft flew OK.

C2 Hmm I'm not so sure. Are wingtips on the CDL?

C1 No, they're not, but I'm pretty sure that CDLs don't cover taking off equipment damaged in accidents.

C2 I wonder who was out of position yesterday? The taxi and parking lines are supposed to guarantee clearance.

C3 Not necessarily. They've recently repaved the holding point where it happened, and the airport documents say 'Wingtip clearance not assured, take care when passing'.

C1 Yeah, at Seattle tower once, a China Airlines A340 was taxiing into gate and as it taxied on the taxiway centreline, the right winglet struck an American MD80's horizontal stabilizer, even though it was parked.

C2 And did it fly afterwards?

C1 Yup, it left a few hours later, one winglet short.

3.06

P1/2/3 = pilot 1/2/3, C = controller

C G-JG. Line up and wait runway 08. Keep to the right-hand side. There will be traffic backtracking opposite direction. You are number one for departure.

P1 Line up and wait on the right-hand side runway 08. G-JG

C G-ME. Backtrack runway 08. Keep to the right-hand side. Traffic on runway.

P2 Backtracking and wilco. Traffic copied. G-ME.

C G-ER. Turn left base. Report final. You're number one to land.

P3 Turning base. Wilco. G-ER.

C G-ME. After the Cessna, vacate right and taxi to apron 2 via taxiway B.

P2 Apron 1 via taxiway B after the Cessna. G-ME.

P1 G-JG. The Piper just brushed our left wing tip.

P3 G-ER. Final.

C G-ME. Hold position.

P2 Holding. G-ME.

C G-ER. Go around I say again go around and report again on downwind.

P3 Going around. Wilco. G-ER.

C G-JG. Are you OK?

P1 We're OK. The Piper just clipped our wing. Request permission to step out of the aircraft to have a look at the damage. G-JG.

C G-JG. Approved.

...

P1 Tower. G-JG. Request permission to taxi back to the apron, and the Piper is able to do the same.

C G-JG. So you're both able to move, no problem?

P1 Affirm. G-JG.

C G-ME. Vacate right and taxi to apron 2 via taxiway B.

P2 Apron 2 via B. G-ME.

C G-JG. Follow the Piper to apron 2 via taxiway B. When you've parked, could you telephone me and report any damage.

P1 Follow the Piper and wilco. G-JG.

Progress test 5

3.07

This is an extraordinary picture. When you first look at it it's difficult to orientate yourself. There are two aircraft on an apron with a lot of people looking around. It looks as if an Air France aircraft has had its tail sliced off by another aircraft of which you can only see part of the wing. There is a logo on the wing that looks like a Far East logo. You can only partly see the aircraft; you can see the engine and a bit of the wing. Although you can see damage on the wing of the aircraft, it's only minor. But the damage to the Air France aircraft is major. It's sliced the tail fin and elevators completely off which are lying beside the aircraft on the ground. Around it are three or four people with mobiles which they're using to take pictures. They are wearing high visibility vests. In the very centre of the picture there is a lady not wearing a vest, and to the side a couple of supervisors in white shirts. There is a rescue vehicle stationary on the left-hand side of the foreground of the picture with a driver wearing a helmet. In the background there are five vans with a number of people coming out. It looks as if they've got cameras as well. The sky is clear.

3.08

R = reporter, CW = Colonel Wang

R A terrible earthquake has cut off all land routes into Xiang province. The only possible way to get supplies into the area was by making an airdrop. A special reconnaissance force was assembled and sent into the area most affected by the quake. Fifteen parachutists were dropped from a record breaking 4,000 m. To add to the difficulty they were forced to land without any help from ground crew and there were not any specific landmarks. Once the parachutists had landed they provided information to the air force about where to drop supplies. Five tons of aid materials including food and water were delivered. The supplies were dropped by an EU76 aircraft from 5,800 m. This is quite an unusual operation for this type of aircraft. Normally the air drops take place at about 600 m above sea level. But even though the terrain was so difficult and the weather conditions so poor, the air force were able to complete their mission. Colonel Wang, the leader of the reconnaissance group, explained the difficulties the reconnaissance group had to deal with.

CW Of course it was a very difficult and dangerous situation, but we had a job to do. We had to make sure that all the food was dropped in the right places and not scattered around the countryside. Because we were in the middle of the mountains and the visibility was so bad it was hard to find the goods. But because of the dedication and skill of my team we were able to locate and distribute the much needed supplies.

3.09

C = controller, P 1/2/3/4/5/6 = pilot 1/2/3/4/5/6

C Eastern 865. Approach.

Eastern 865. Resovač Approach.

Airtrans 323. The aircraft behind you appears to have a comms failure. Vectors for separation. Reduce speed 200 kn. Fly heading 220°.

P1 Speed 200 kn. Heading 220°. Airtrans 323.

P2 Resovač approach. EI-TFC. Request clearance to join F2 at DORAT maintaining FL150.

C EI-TFC. Negative. Remain outside controlled airspace due aircraft in urgency situation.

P2 Wilco EI-TFC.

C ARMYAIR 232. Can you increase speed 350 kn to cross F2 at DORAT, FL150 time 19 or before?

P3 At present mass max speed is 320. ARMYAIR 232.

C ARMYAIR 232. Roger, cancel clearance to cross F2 due to traffic with suspected radio failure. Remain outside controlled airspace. Expect further clearance at time 21.

P3 Remain outside controlled airspace. ARMYAIR 232.

C Eastern 865. Resovač approach.

Eastern 865. Resovač approach.

Sunbird 223. Traffic information. Traffic is an Eastern A320-200 with radio failure. 12 o'clock 3 miles crossing right to left, below.

P4 Traffic in sight. Sunbird 223.

C Airtrans 323. Fly heading 340°.

P1 Heading 340°. We have the Eastern in sight at our 2 o'clock. Airtrans 323.

C Airtrans 323. We tried to slow him down and put him behind you, but we cannot contact him. Continue right turn direct LESKO.

P1 Continue right turn direct LESKO. Airtrans 323.

C Eastern 625. Hold at LESKO FL110. Expect onward clearance at time 27.

P5 Holding at LESKO FL110. Eastern 625.

P6 Resovač Centre. Eastern 865. We are declaring an emergency now. We've got serious problems with our electrics and radios. We're trying to ascertain the cause now.

C Eastern 865. Resovač Centre. Roger understand you are declaring a MAYDAY.

Unit 26 Fuel problems

3.10

In this picture we're looking at an aircraft being refuelled. It's at what looks to be quite a large airfield. It's difficult to say where exactly the airfield is although in the background we have a wooded hillside and it's a cloudy greyish day. So I would think we're probably in Europe, perhaps in spring or early summer.

The aircraft is probably a Boeing and it's being refuelled from underground fuel tanks via a vehicle. The vehicle is taking the fuel from the underground tanks and the fuel is being pumped by a refuelling attendant. I think the attendant is about to connect or disconnect the refuelling pipe to the underwing of the aircraft.

The ground handler is wearing high-visibility clothing, so he's got day-glow clothing on. The vehicle is white, the usual colour of the refuelling vehicles at airports. I think the aircraft is probably a modern 737 with a nice wing tip

3.11

The latest aircraft produced by Airbus is the amazing A380. But passengers on board the Premair A380s have had to wait a bit longer before being able to fly on them due to recurring problems with the aircrafts' fuel tank systems which have affected a number of the fleet's A380 aircraft.

The problems began last week when two of the airline's A380s were grounded at Boston Airport after experiencing fuel-related problems. One is due to return to service at 5.40 p.m. tonight and the other tomorrow.

In a related incident, the airline's flagship was delayed yesterday in Dallas, before eventually being cleared to fly to Paris. However, on arrival at Charles de Gaulle airport it was again found to be leaking fuel and experienced a nose wheel steering issue, and was declared unserviceable.

In the latest development, Premair was forced to declare another of the aircraft 'unserviceable' last night, after scores of passengers had waited more than 12 hours for a fuel leak to be repaired.

A spokeswoman for Premair said it was natural to expect 'teething problems' with a new aircraft and the airline was working with Airbus to resolve the issues. She said their engineers are currently working on the aircraft and they hope to have them back in service very soon. She went on to say that they are working very closely with Airbus and remain committed to the A380 as the cornerstone of their new generation, and they apologize to their customers. Is the A380 worth the wait? Contact us with your views.

3.12

P = pilot, ATC = air-traffic controller

ATC Flyfast 001, Filton Tower.

P Flyfast 001. Pass your message.

ATC Flyfast 100. Request your intentions. What do you want to do?

P Stand by. Flyfast 001.

Flyfast 001. We're talking to company at the moment and we're trying to decide whether to continue or come back. We'll give you a call in a minute. Maybe for vectors to down wind. Flyfast 001.

We're going to return to the airport and it looks like we're going to have to dump fuel. Stand by. But we're coming back. Flyfast 001.

ATC 001, understand you're going to come back and you need to dump fuel?

Fuel dumping area is in the Severn estuary. Suggest start dumping fuel five miles north of Lundy island. I'll give you vectors to Filton on completion.

Fly heading 210 °.

Flyfast 001. Once you get 20 DME from Filton you can start to dump fuel.

P To what DME?

ATC Flyfast 001. 20 miles.

Do you know the nature of your problem?

P It's a flap problem, we can't retract the flaps below 10%.

ATC Roger.

Flyfast 001, do you have an estimate on how long you'll be dumping fuel for?

P We're just checking now. We want to dump about 70,000 kilos, it's going to take about 30 minutes. We'll try to find a figure where we can land overweight.

Unit 27 Airfield activities

3.13

The dominant feature of this picture is the people in a playing field standing in a formation which spells the word 'no' in capital letters. There are several hundred demonstrators in formation all facing the camera and they seem to be holding orange placards, but I can't see what the placards say. There are also other small groups of people dotted around the playing field. Around the edge of the playing field are trees, and beyond the trees on the left is a residential area with semi-detached houses and what looks like a fire station tower, and in the centre and on the right are industrial buildings and warehouses, and a tall white chimney with a black top. In the distance I can see an airfield and dozens of parked aircraft, a very large hangar to the right and gas storage tanks in the centre.

3.14

Protesters converged on Heathrow Airport in London again today to say 'no' to airport expansion. Pilots on departure from the northern runway reported seeing thousands of protesters form a massive NO sign in the village of Sipson, just north of the airport, which will be destroyed if the planned third runway is built.

Pilots have invited environmental campaigners at Heathrow to participate in discussions about climate change issues. British Airline Pilots' Association chairman Captain Mervyn Granshaw said that talking about climate change is better than any direct action.

This incident comes four months after environmental activists breached security at Heathrow and climbed on top of an aircraft. Four people were arrested after hanging a banner reading 'Climate Emergency – No Third Runway' from the vertical stabilizer of a British Airways Airbus A320. Two women and two men dressed in high-visibility jackets managed to get past airside security and across the apron. They climbed up the aft passenger steps and then onto the aircraft via a jetway. BAA, the airport operator, said operations at the airport were not affected and described the protest as unlawful and irresponsible.

Climate change is a hot political issue in the UK. A number of other airports have seen environmental protests over the past few months, including Stansted, Biggin Hill and East Midlands Airport, where 24 protesters broke through security fencing and occupied a taxiway for several hours causing minor disruption.

3.15

P1/2 = pilot 1/2, C = controller

1

C Air France 034 heavy. Line up and wait runway 19L.

P1 Line up and wait runway 19L. Air France 034 heavy.

C Airwest 247. Vacate next left taxiway G. Hold short of runway 19L.

P2 Next left and hold short of runway 19L. On landing we could see a balloon to the south-east of the airfield. Looks like a white, helium weather balloon about 300 ft, tracking north-west bound. Airwest 247.

C Airwest 247. Roger. Thank you. Break break.
Air France 034 heavy. Did you copy that transmission?

P1 Affirm. Balloon in sight. Request permission to hold until the balloon has passed. Air France 034 heavy.

C Air France 034 heavy. Hold position.

3.16

P = pilot, C = controller

2

C AV 523. Caution, work in progress ahead north side of taxiway A.

P There's some building equipment on the taxiway.
I think they're about to move it. Request hold this position until clear to proceed. AV 523.

C AV 523. Roger. Hold position and advise when it is clear to proceed.

3.17

P = pilot, C = controller

3

P Tower, Biz Air 887. We saw a lot of people at the western perimeter fence on departure from runway 27L. Some appeared to be climbing over onto the airfield.

C Biz Air 887. Thank you. We have security personnel on their way now.

3.18

P1/2/3 = pilot 1/2/3, C = controller

4

P1 Tower. Solar 7459. Do you see something on the approach, over the threshold of 22R? It looks like a parachute.

P2 It looks like some guy on a paraglider. KLM 604.

C Solar 7459. We'll get someone over there to have a look at it.
Police 123. Tower.

P3 Tower. Police 123. Pass your message.

C Police 123. We've got someone on what we think is a paraglider above the threshold of 22R. Request you investigate.

P3 Roger. Wilco. Police 123.

Unit 28 Aerodrome/ airfield environment

3.19

This is a picture or an image of an aircraft, right at the end of a non-tarmaced strip. In the mid-ground there is a series of chalets and houses and in the background are mountains. In the centre of the background the picture is dominated by one particular mountain with snow on the top. The sky is clear with fair-weather cumulus scattered around it. The vegetation is fairly sparse, mostly rock and scrub, with probably gorse and fir trees around the place.

And now we come onto the interesting part, which is the aircraft on the end of a strip. It's a twin-engine aircraft, the engines are going but it's difficult to know whether the aircraft has just come to a halt after landing or it's about to take off. There is a man on the left-hand side dressed in a shirt and trousers watching, he's certainly not part of the crew or a marshaller.

The aircraft is obviously not moving because there's no dust being pushed up on the strip. As an aviator it's an interesting picture because I imagine the overshoot or the approach is only one direction down the valley. So if the wind was wrong, it would be a very interesting approach or overshoot with little choice between the two.

3.20

The capital of Honduras is a place called Tegucigalpa. The airport there is extremely interesting because of its difficult approach and because of its surprisingly short runway. It's one of my all-time favourites. The runway is only 6,132 ft long.

The city is in a basin between several tall mountains and the airport was built on a plateau south of the city.

The approach into Tegucigalpa is amazing. Up until a few years ago there used to be a small hill some 200 ft from the runway; aircraft used to have to fly low, ascend the hill, and descend into Tegucigalpa. This was flattened during the early 1990s in order to make the approach less dangerous. The result is an approach which is much safer but equally as interesting. An aircraft landing on runway 01 must circle inside the basin below the mountaintops. I love looking up at the wing and still seeing trees and mountains while being banked the other way. After it circles the basin the pilot has only 100, 200 ft to line up before the runway. As soon as the aircraft crosses the fence separating the airport property and the highway, it must make contact. The runway has a displaced threshold – it's impossible to touch down at the beginning – leaving only 5,436 ft of useable landing runway. That short runway, coupled with a 1.06° downhill slope on runway 01, allows for little braking time. I've flown into quite a few unusual places, but for me, nothing beats the thrill of witnessing the skill of pilots as they complete this incredible landing.

3.21

P = pilot, ATC = air-traffic controller

ATC XT3. You were not cleared through the approach corridor. Leave the approach corridor and remain to the north.

P I didn't copy that, say again XT3.

ATC XT3. You are too close to the extended centreline of the approach. Remain north of runway 27, landing traffic on four-mile final.

P Looking for the traffic and will remain north of the centreline. XT3.

XT3 request.

ATC XT3, pass your message.

P We need to check the routing of the convoy. Request to cross the centreline to the south. XT3.

ATC XT3, negative. Remain to the north of runway 27. Traffic on short final, report that traffic in sight.

P Remain north of the active, wilco. XT3.

Traffic in sight. XT3.

ATC XT3, cross behind that traffic.

P We do not need to cross behind because we will stay on the western side of the airport.

ATC XT3, roger and remain north of runway 27 until landing traffic on runway.

P Roger. Confirm that we can cross after the aircraft lands? XT3.

ATC XT3. Affirm.

XT3. Cross runway and clear to land on the H surface wind 260° 8 kn.

P Clear to land on the H. XT3.

ATC XT3. Turn right and hover taxi to the terminal, contact ground on 121.90.

P Wilco and contact ground 121.90 XT3.

Unit 29 Airfield and navigation equipment failure

3.22

In this picture I can see the result of a fire in an air-traffic control tower. The fire has been extinguished, and there are no flames or smoke. However, there is a blackened area and fire damage around the left of the tower below the windows, and the fire seems to have affected four of the windows, but the roof seems to be fine. I doubt whether an aircraft has hit it, because there is no debris from an impact. It could have been the result of terrorist action, perhaps an explosion, but it definitely looks as if there has been an external fire. I suppose the facility has been evacuated and the airport must be closed because it wouldn't be possible to provide air-traffic control services in this situation. There are around five fire-fighting personnel on the roof below the observation deck wearing high-visibility clothing and helmets.

3.23

P = pilot, I = interviewer

I Mohammed, could you tell us what happened on the approach?

P Yeah, the planned approach took us around the DME arc to join finals for runway 08. It was a moonless night and the controller was reporting scattered cloud.

I So all was well?

P Yes, as we came round the arc, everything was fine. Glideslope capture happened almost immediately after the approach mode was selected and everything became rushed. The aircraft began to accelerate as it pitched down and was a lot faster than it should be. But there were no flags, no warnings, so we concentrated on managing the speed.

I But something was still bugging you?

P Exactly. After we completed the landing checklist, I began to think again. Why were we going so fast? Why were we using the speed brake and gear?

I Right.

P We were looking for something to confirm the ILS indications. We couldn't see the airfield clearly as expected, and thought that maybe this was due to the reported cloud. Then the first officer looked out to the side and was surprised to see the lights from a village were so close.

I That was the second surprise.

P Yes. At the same time, I was doing a DME crosscheck but the answer didn't agree with the ILS indications. That was enough surprises for us. Wherever we were, we were where we were not supposed to be, and we both called to go around.

I OK, and what did you do then?

P Once we were at a safe altitude we discussed the problem and concluded that the glideslope was faulty and could not be trusted. We planned a second approach using the localizer and ignoring the on glide-path indication.

I And that's good crew resource management.

3.24

1

C All stations, all stations, radar has failed, I say again, the radar has failed; all aircraft return to previously-assigned headings and levels. Aircraft are to adhere strictly to ATC instructions.

3.25

P = pilot, C = controller

2

P We've overshot the runway here. Interlink 743.

C Interlink 743. Roger. What assistance do you require?

P We couldn't make out the end of the runway at all. Interlink 743.

C Interlink 743. The runway end indicator lights are unserviceable.

P We didn't copy that in the NOTAMS … uhh … we'll need help getting back on the tarmac. Interlink 743.

C Interlink 743. Roger. We're sending out a vehicle now. Will you require any support for your passengers?

P Uhh … Negative. Interlink 743.

3.26

P = pilot, C = controller

3

C Net Air 887. Hold position. I'm getting a radar indication there's another aircraft on your runway.

P Net Air 887. Holding.

Net Air 887. We've stopped short of the intersection with runway 19. We have negative visual contact with another aircraft on the runway.

C Net Air 887. Radar indicates it is behind you now, but it may be an erroneous return.

P Negative contact with any other aircraft. Net Air 887.

C Roger Net Air 887. You are clear to cross runway 19 and vacate next left.

3.27

P 1/2 = pilot 1/2, C = controller

4

P1 Outer marker inbound Korean 327.

C Korean 327. Roger.

P1 This is Korean 327. We've just lost contact with the runway lights.

C Korean 327. Say again.

P1 We can't see the runway lights at all beyond the touchdown zone. Your edge and centerline lights are out. We are making a missed approach. Korean 327.

C Korean 327. Roger.

P2 This is Swifttail 653 at holding position A8. To confirm what the Korean 327 said, you've completely lost the runway edge and centreline lighting. The runway's pitch black up here.

C Swifttail 653. Roger, will get the engineers onto it right away.

Unit 30 Ground services

3.28

In this picture it looks like there has been quite a nasty accident. There is a large vehicle, maybe the sort of passenger-carrying vehicle that takes passengers from the terminal to the aircraft, and it has turned over on its side. I can see the underside and the front end of the vehicle. It has three sets of wheels; one at the front and two at the back. It looks like the axle is bent at the right-hand front wheel, and the front end is quite badly damaged. There is a big dent on the left side and it looks like the windscreen has smashed away completely. In the foreground, there is a lot of debris over the ground, including some quite large pieces of bent and twisted metal. Behind the vehicle and on the right side of the picture, there is a set of air stairs which indicates that the accident occurred at an airfield, and an aircraft was involved in some way. I have no idea what could have caused this accident. Maybe the vehicle was moving too fast and swerved to avoid something, but it looks more likely that there was a collision. It must have been quite serious because it would take a pretty big force or impact to turn a large vehicle like this over.

3.29

N = newsreader, I = interviewer, TR = Tony Roberts

N When people think of a near-miss in aviation, it's usually the possibility of aircraft colliding. However the pilot of a Bombadier at Plymstock airport was startled to see a mechanical digger heading directly towards his aircraft just after ATC had cleared him for take-off. The digger came within inches of hitting the aircraft and was seconds away from causing a disaster.

Our reporter at the scene spoke to Tony Roberts, the manager for the airport authority

I 1

TR The incident was a serious near-miss.

I 2

TR Yes, we have strict procedures in place. All traffic, whether truck or aircraft, must contact ATC to get clearance before crossing any taxiways or runways. The driver of the vehicle should have stopped at the intersection of runway 22L and the taxiway and then waited for clearance.

I 3

TR We are investigating the causes right now. A new taxiway is being built and the driver was part of the construction team.

I 4

TR An alarm sounded in the control tower indicating that something was on the runway just after they'd cleared the aircraft. The controller saw the digger and tried to contact the driver who didn't have the radio on. Moments later the pilot saw the approaching truck.

I 5

TR He is currently helping the authorities with their investigations.

3.30

P1/2 = pilot1/2, ATC = air-traffic controller

ATC 914, left via F and A. When you get to Y follow Korean Air.

P1 OK. Left F, Y and then YPB you said?

ATC Negative. When you get to Y, follow Korean Air.

P1 Ah, follow Korean Air. United 914.

P2 Ground. Korean 257. We think we hit a vehicle. A truck near the taxiway.

ATC I'm sorry, you think you hit a vehicle?

P2 Yes.

ATC OK Korean 257, hold your position.

P2 Holding position.

ATC United 914 do you see anything near Korean Air?

P1 I'm looking. I don't see anything. Does he think he's just hit something? United 914.

ATC Affirm. He said that there might be a vehicle damaged or something.

P2 Check on the right side please.

P1 OK. We're looking at the right side. I don't see anybody who looks upset. We'll take a closer look.

Ground. United 914. It's really hard to tell, there is a vehicle parked there. Maybe his outboard engine hit it. I can't tell from here.

ATC Roger, United. Thank you very much.

Korean 257, a follow-me vehicle is on its way to you. They'll make a visual inspection.

P2 Roger. Thank you. Korean 257.

ATC Korean 257. Ground.

P2 Pass your message. 257.

ATC Yeah, the airport vehicle is inspecting the right side of the aircraft, can you cut the engines?

P2 Say again. Korean 257.

ATC Cut your engines down to idle.

P They are already at idle, do you want us to shut down the engines?

ATC Affirm 257. Shut down your engines.

Progress test 6

3.31

This is a picture of half a runway. The runway leads away from the foreground directly into some hills. It's a very basic runway which is in a bit of disrepair although the centreline markings look as if they've been newly painted. There's no taxiway and on either side is burnt grass and past the grass there are some low one-storey buildings, with tin roofs. Only one building is two storeys. The buildings and airstrip are on a flat plane overlooked by mountains and hills. You can see a taxiway at the end nearest which turns into a sad-looking dispersal area. The hills are the dominant feature, they tower above the runway. They are covered with green vegetation. It's an interesting picture in that you have the magnificence of nature overlooking the rather sad endeavours of mankind.

3.32

a I stopped at the 'stop' sign. I looked in both directions and didn't see any aircraft. I put my flashing lights on. All the exterior lights – running lights and headlights – were on and the interior lights were off. To my right I noticed the nose taxi lights of an aircraft and I carefully moved forward. I stopped, looked both ways and then drove across the cargo ramp. I heard the controller repeatedly telling the aircraft to hold. At least I assumed the message was for the aircraft. The next thing, there was a bright light and I was thrown to the floor

b We pushed back and started the engine. Ramp control gave clearance to my first officer to taxi and hold at B. We were on our way there when he suddenly shouted 'bus'. From my seat on the left I saw the bus, but even though I braked as hard as I could was unable to stop before we hit the bus. It just kept coming. As far as I could see there were not any lights on the bus.

c I was sitting on the right-hand side at the back looking left. We stopped at the sign and then carried on across the cargo ramp. I could see that there was an aircraft getting closer and closer and I repeatedly shouted at the driver to 'look out'. But he didn't do anything.

d Once we'd pushed back we were given clearance to taxi and hold short of the taxiway at FA. There was an inbound aircraft holding short of the cargo ramp waiting for us to exit. All the runway lights were on. I'd just finished the check list when I saw something dark on my side on the right. I couldn't see any lights on the vehicle, I shouted 'bus' to the captain, we crashed and I was hurt.

3.33

1

P MAYDAY MAYDAY MAYDAY Spira tower. Rotary 42. Robinson 11. Three miles east of the field, height 800 ft. Heading 040°. My fuel gauge is reading empty, and the auxiliary gauge is reading low. Suspect rapid leak.

C Rotary 42. Spira tower. Roger MAYDAY. Say intentions.

P Unable to proceed to the field. Making a full-power landing on playing field east of Spira. Stand by. Rotary 42.

C Rotary 42. Roger.

P Spira tower. Rotary 42.

C Rotary 42. Pass your message.

P We set down on the playing field and shut down. The fuel tanks are almost dry. I have spoken with dispatch and am awaiting instructions. I'll contact you once I know more. Rotary 42.

3.34

2

P Yoshi radar. Starjet 872.

C Starjet 872. Pass your message.

P Holding at MATSU FL140. Request update on weather. Starjet 872.

C Starjet 872. Visibility still below landing minima at Minawa.

P Starjet 872. Approaching minimum fuel. Request immediate diversion to Nagazawa.

C Starjet 872. Cleared direct TOTA, FL140. Contact Nagazawa approach 129.350.

3.35

3

P Courier 254. Koduk Centre. B737-700 32 miles west of Meliau, FL320, heading 240°. Request descent and landing at Keladang.

C Courier 254. Roger. Descend FL180. Do you have a problem with your flight?

P Leaving FL320, descending FL180. Affirm. We have low fuel pressure for engine number 2, and an indication of fuel imbalance. Courier 254.

Review test 1

3.36

This is a picture of a crashed aircraft lying in the foreground. The aircraft has obviously landed heavily. So heavily that the wings are bent downwards, the spar is cracked on one of them. The undercarriage is splayed either side of the aircraft. The propeller is bent and the engine is coming out of the cowling. It has a striped fuselage. Nobody is in it. It looks as if the windscreen has been broken and there is relatively little damage to the tailplain or elevators. However the impact has obviously been heavily down as opposed to along and the whole aircraft is damaged, with two drooping wings. The setting is nondescript – a sparse wooded area on a fairly flat plain. A blue sky dotted with fair weather cumulus and some strata as well. Looks as if a front may be coming in from a distance, although the visibility is extremely good. This is a sad picture of an aircraft that will probably never fly again.

3.37

P1 Hello guys.

P2/P3 Hey/hello

P3 How's it going?

P1 Pretty exhausted. Long day today. You know, I left the flight deck just 15 minutes inside the 16 hour limit this evening.

P2 What time did you show up this morning?

P1 Reported in at 5 a.m. Out of bed just after three. Flew five legs in total and had to wait in Munich for three hours because of the snow.

P3 Sounds like my day.

P2 Yep. Sounds like a normal day in the office.

P1 I'm looking forward to the day when I get a job for a long-haul airline. I can cope with the jet lag. I just struggle with these long days.

P2 Much easier for long-haul pilots. They get a break every eight hours at the controls. Regional flights somehow don't get this protection.

P3 Short-haul airlines seem to think we're machines who can just switch on and switch off.

P2 There are some regional patterns on the roster now at my company that involve a 12-and-a-half-hour duty, with not even a 15-minute break.

P3 Yes, and you can only leave the flight deck for a walk around or to use the bathroom. They even eat at the controls.

P2 Did you know that bus drivers have more restrictions than pilots at our company?

P3 Incredible!

P1 I was talking to a Canadian pilot a few years ago who said they can work 42 days straight without a day off.

P3 Now that's tough.

P1 Yeah. He was saying in Canada you can do 150 hours flying in one month and up to 60 flight hours in one week. I think these flight and duty time standards favour the operator rather than safety. It's all about making money.

P2 Look on the bright side though. I was reading that the European Aviation Safety Agency has started work on new pilot fatigue rules.

P1 I heard that too. Let's hope they really will be based on science rather than on commercial pressures. I mean, there's loads of scientific research on the issue, but the regulations just don't consider it which is crazy.

P3 Yeah, I think the FAA in the States is going to review the rules like they are doing in Europe.

P2 Did you hear about that fatigue risk management system forum? That looks promising.

P1 What's that?

P2 Some airlines have got together to discuss best practice with human fatigue management. They've got some pretty big names, Air New Zealand, easyJet, Delta, Virgin. They're going to produce guidance for airlines to set up their own fatigue management systems.

P1 Our company would really benefit from a system like that!

P3 Yeah, they could start by putting us up in a decent hotel. A good night's sleep would be very nice!

P2 Yeah; I always get woken up when the bar closes at 2 a.m.

P1 The walls are so thin I only ever get about four hour's sleep when we stay here. All our crew members get tired, not just us.

P2 And people wonder why pilots nap on the flight deck?

3.38

C Zoom 464. Taxi to holding point runway 25R via B.

P1 Taxi to holding point runway 25R via B. Zoom 464.

C Tiger 236. Cleared for take-off runway 25R. Wind 200° 19 kn.

P2 Cleared for take-off runway 25R. Tiger 236.

C Albion 291. Vacate next right, taxi to south apron via M. Give way to the A340 inbound on L.

P3 Next right, taxi to south apron via M. Wilco. Albion 291.

C I-45YC. Line up and wait runway 25R.

P4 Line up and wait runway 25R. I-45YC.

P2 Tiger 236. Stopping.

C Tiger 236. Roger.
OO-G. Cleared to land runway 25L. Wind 200°, 21 kn.

P5 Cleared to land runway 25L. OO-G.

C Tiger 236. Say reason for stop.

P2 We had a low oil pressure indication for engine number 1. Readings are now normal. Request another departure. Tiger 236.

C Tiger 236. Roger. Vacate left taxiway E. Taxi to the holding point runway 25R via B.

P2 Vacate left taxiway E. Taxi to the holding point runway 25R via B. Thank you. Tiger 236.

C I-45YC. Aircraft vacating runway. Expect departure in two minutes.

P4 I-45YC.

C Albion 291. Hold position. I told you to give way.

P3 Holding. We slid across L on black ice. Albion 291.

C Albion 291. Roger. Vrako 878. Hold position.

P6 Holding. We watched him skid right out in front of us. Vrako 878.

C OO-G. Vacate next right taxiway I. Hold short of L. Advise slow speed. We have reports of poor braking action on the south taxiways.

P5 Next right taxi I. Roger. OO-G.

P4 Tinovec tower. I-45YC. There's a group of rodents running around on the field over here.

C I-45YC. Say again.

P4 A few animals … I can't see what species … out here on the right side of runway 25R. I-45YC.

C I-45YC. Roger. Thank you.
Albion 291. Are you able to continue taxi?

P3 Steering is going to be an issue. We'd prefer a tow. Albion 291.

C Albion 291. Roger. We'll send a vehicle to you now.
I-45YC. Cleared for take-off runway 25R. Wind 200°, 21 kn.

P4 Cleared for take-off runway 25R. I-45YC.

P1 Tinovec tower. Zoom 464. Request return to the north apron.

C Zoom 464. Turn next right taxiway C and hold position. Do you have a problem?

P1 We've a party of 16 kids on board who've lost their passports. We need to get this sorted out. Zoom 464.

C Zoom 464. Roger. Hold position. Traffic is just arriving at stand 23. We'll need to find a parking position for you.

P1 Turn next right taxiway C and hold position. Zoom 464.

Review test 2

3.39

This is a picture that gives the impression of heat and movement. In the foreground there is a photographer, standing by a tripod, on which is a camera. He's in shirt sleeves and with what looks like a small rucksack on his back. He's standing next to the tripod operating the camera amongst some scrub, which has been dried by the sun, and he is taking a photograph or filming a jet aircraft which looks like a 777 taking off from a runway. There is shimmering heat the whole way around the aircraft. You can see the heat from the two huge engines and you can hardly see the background at all because of the shimmer of the heat. The nose has lifted, the nose wheel is maybe twenty feet in the air and the main wheels are probably just about to lift. The angle is quite steep and the tail is close to the runway, but there is no sign of dust or debris, which you would expect if there was contact between the tail and the ground in a tailstrike. The aircraft is quite close to the photographer who I imagine will be blasted by the engines. I would run if I was him. Apart from that, the background is sand, desert type scrub with a clear cloudless sky. The aircraft is not particularly in focus so it's difficult to know which company it belongs to. Indistinguishable markings on the fuselage.

3.40

I This month's flightweb podcast looks at the topic of staff shortage in air-traffic control. With me today to talk about this is Rolf Hassenburg, a former air-traffic controller and air-traffic management consultant. Rolf, what's the current situation?

R It's pretty bad right now. Very basically, we can say that the system has been operating for a long time without enough air-traffic controllers, and this situation will get worse as the industry continues to grow.

I Where is this problem particularly bad?

R There are chronic shortages in many parts of the world. In Australia, for example, staff shortfall has forced shutdown of services across many parts of the country, with many controllers working overtime to fill the gap. This has lead to higher stress levels and controller fatigue which has caused the relationship between the navigation service provider and the union to become quite tense over recent months. In Europe there is an estimated shortage of 1,000 controllers. In some European countries the air traffic has more than doubled in the last five years, but the number of controllers has remained the same. This shortfall is projected to rise to 3,000 in the coming years.

I What about areas of the world that are developing quickly?

R Good question. Take India, where rapid expansion of the aviation infrastructure is causing staff problems. Delhi airport, for example, currently has 200 controllers in total. The airport recently inaugurated its third runway and the internationally accepted number of controllers for an airport with three runways is 350.

I Why are there not enough controllers?

R Well, one of the problems is actually retaining staff. Air Traffic and Navigation Services in South Africa, in spite of offers of higher wages and improvements in the working environment, is struggling to keep their controllers. A similar problem was faced by National Air Traffic Services in the UK, which was forced to completely rethink the way it managed its human resources – this had a very positive effect on controller morale.

I And what about recruitment?

R There is a general view among controllers that ANSPs, due to their different perceptions about staff numbers, are not doing enough to recruit enough trainee controllers to sustain current operations, or address the shortfall. However, many regions of the world are planning big recruitment drives. The problem with recruitment is that many thinking of entering the ATC profession are being discouraged because of tough working conditions and the overtime. Another problem with training is that it takes a long time, and has quite a high drop-out rate. For example, in some training programmes, up to 60% of trainees fail to complete the course, and never actually become a qualified air traffic controller.

I And I understand retirement is also a problem. Is that right?

R Yes, many areas are facing problems with an ageing controller population. Among the most troubled is the US, where close to half its 15,000-strong controller workforce is eligible to retire within the next 10 years.

I And what are the solutions to this? What is the industry going to do?

3.41

C D-23GH. Turn left heading 240° direct ROSCA. Climb FL130.

P1 Turn left heading 240° direct ROSCA. Climbing FL130. D-23GH.

C Estrella 525 heavy. Climb FL170. Pass SAAMI FL140 or higher.

P2 Climbing FL170. To be SAAMI FL140 or higher. Estrella 525 heavy.

P3 Previair 234. Good evening. DIAMA 28, FL140. PARAL 35.

C Previair 234. Good evening. Descend and maintain FL100. Squawk 3312.

P3 Descend and maintain FL100. Squawk 3312. Previair 234.

C Rabbit 487. Climb FL170. Reach SAAMI FL140 or higher.

P4 Climbing FL170. Reach SAAMI FL140 or higher. Rabbit 487.

P1 Cuiba approach. D-23GH. Level at FL110. Request immediate descent.

C D-23GH. Say reason for descent.

P1 We're picking up rime ice. We've got a nose down pitch due stuck elevator. D-23GH.

C D-23GH. Roger. Descend FL70.

P1 FL70. D-23GH.

P5 DIAMA 31, FL140. PARAL 38 A6-TYC.

C A6-TYC. Descend and maintain FL120. Squawk 1423.

P5 Descend and maintain FL120. Squawk 1423. A6-TYC.

P4 Cuiba approach. Rabbit 487. We're experiencing severe chop due vortex from the heavy.

C Rabbit 487. Vectors for avoidance. Turn left heading 240°.

P4 Turn left heading 240°. Rabbit 487.

P6 Cuiba control. Cityair 687. Good evening. Passing altitude 4,000 ft.

C Cityair 687. Good evening. Climb and maintain FL70. Squawk 2254.

P6 Cityair 687. Climbing FL70. Squawk 2254.

P5 MAYDAY MAYDAY MAYDAY, Cuiba control. A6-TYC. Cessna Citation, 9 miles DME north-east PARAL, FL100. Two crew, two passengers. The captain is not well at all. Suspected stroke. Request immediate diversion to Tocaran International.

C A6-TYC. Roger MAYDAY. Stand by.

Previair 234. Aircraft behind you requires priority handling. Hold at PARAL FL100. Expect onward clearance at time 39.

P3 Hold at PARAL FL100. Previair 234.

C A6-TYC. Continue direct PARAL. Cleared PARAL 1 alpha arrival Tocaran runway 34L. Descend and maintain altitude 6,000 ft, QNH 1007.

P5 Continue direct PARAL. Cleared PARAL 1 alpha arrival runway 34L. Descend and maintain altitude 6,000 ft, QNH 1007. A6-TYC.

P7 CMF287. FL170.

C CMF287. Contact Porto Centre 128.750.

P7 Contact 128.750. Good bye. CMF287.

C D-23GH. 12 miles south-east SAAMI, FL70. What is your situation now?

P1 We've regained full control of the aircraft. May we maintain this level? D-23GH.

C D-23GH. Affirm. Continue direct ROSCA FL70.

P1 Continue direct ROSCA FL70. D-23GH.

C Rabbit 487. Turn right heading 300°.

P4 Right heading 300°. Rabbit 487.

C A6-TYC. An ambulance will meet you on the south apron for a rapid transfer to hospital. Descend altitude 3,000 ft. Contact Tocaran tower on 124.450.

P5 Descend altitude 3,000 ft. Contact 124.450. Thank you. A6-TYC.

C Previair 234. Cleared PARAL 1 alpha arrival runway 34L. Descend and maintain altitude 6,000 ft, QNH 1007.

P3 Cleared PARAL 1 alpha arrival runway 34L. Descend and maintain altitude 6,000 ft, QNH 1007. Prevair 234.

P2 Cuiba approach. Estrella 525. Level at FL170. We have loss of cabin pressure which we believe is from the right-hand forward service door. Request lower.

C Estrella 525. Roger. Descend FL140.

P2 Descend FL140. Estrella 525.